



DATE: July 29, 2009

TO: Edward Gilbert, U.S. EPA/ERT Work Assignment Manager

FROM: Jeffrey Bradstreet, REAC Task Leader *Jeff Bradstreet*

THROUGH: Dennis Miller, REAC Program Manager *D Miller*

SUBJECT: SAPPHIRE MINE ASBESTOS SITE, JACKSON COUNTY, NC
WORK ASSIGNMENT #0-253 – FINAL TRIP REPORT

BACKGROUND

The Sapphire Mine Asbestos Site is a former asbestos mine that operated in the 1960s and was initially identified in the 2005 United States Geologic Survey (USGS) Open File Report. The Site is accessible as a recreational gem collecting site in the Fairfield Sapphire Valley Resort area. Holly Forest Association and the Fairfield Sapphire Valley Master Association (FSVMA) currently own the Site.

The parking lot of the mine is unpaved and located directly on the south side of U.S. Route 64. A trail leads from the lot several hundred feet east to the mine. There are areas of bare soil along the trail leading to the mine, and in the mine area, that contain friable anthophyllite-rich fragments, ranging from non-detect to 15 percent (%) asbestos. Asbestiform anthophyllite, locally approaching 100 % anthophyllite, has been positively identified by Polarized Light Microscopy (PLM) analysis in samples taken from the mine.

The Site has historically been used for recreational gem collecting or rockhounding, which is the collecting of rocks or mineral specimens from their natural environment. A variety of tasks are involved that include walking, digging, hammering, sorting, screening or sieving, and scraping and washing. Visitors to the mine hammer on boulders and rocks, potentially exposing areas with high anthophyllite asbestos content. Large chunks of anthophyllite-like rock have been observed scattered around the Site where they have been broken from the outcropping ultramafic strata. According to the Sapphire Management Company, this recreational mine has been accessible to the public for at least twenty years and the mine has received thousands of visitors during that time. In the Fall 2006, in response to the North Carolina Department of Environmental & Natural Resources (NCDENR) and the Environmental Protection Agency (EPA) Region IV, the property owner posted the Site to prevent trespassing, blocked the parking lot entrance, and all references to the Sapphire Mine were removed from the Sapphire Resort's web site and promotional material.

EPA's Region IV Emergency Response and Removal Branch (ERRB) management have been made aware of this Site, but a removal assessment has not yet been officially requested pending the results of this latest NCDENR effort. Additional sampling efforts to determine the potential migration of asbestiform fibers from the Site are being discussed with NCDENR. The potential for downstream migration is high due to the precipitation runoff via surface water. In addition, fibers may be transported from the Site via human foot traffic and wind entrainment.

Materials inadvertently carried to the parking area could then be further disturbed by vehicular traffic and wind.

ACTIVITY-BASED SAMPLING METHODS

Descriptions for the raking and shoveling activity-based sampling (ABS) are found in EPA Environmental Response Team (ERT) Standard Operating Procedure (SOP) 2084, *Activity-Based Air Sampling for Asbestos*. Descriptions for the chiseling and sieving ABS are found in Response, Engineering, and Analytical Contract (REAC) document 0253-DQAPP-051407, *Quality Assurance Project Plan for Sapphire Mine Asbestos Site*. The target duration for all ABS was 220 minutes. Participants donned personal protective equipment (PPE) and were fitted with high and low volume sampling pumps within backpacks with the filter cassette secured to the shoulder straps near the participant's lapels in the breathing zone. Two downwind and one up-wind high-volume stationary samplers were also deployed on the perimeter of each activity.

For all the ABS scenarios, high and low volume sampling refers to the sampling rate of the pumps used. High flow samples were collected at about 10 liters per minute (L/min), while the low flow samples were collected at about three L/min. The samples were collected simultaneously and collocated. If the high volume samples were overloaded and could not be analyzed, then the low flow samples would be analyzed.

Raking

Participants raked soil, weeds or grass using a metal leaf rake with a width of approximately 20 to 28 inches. Participants disturbed the top half-inch of soil with an aggressive raking motion. Raking occurred in a prescribed area with an arched motion raking from the left to the right. Participants raked debris towards themselves facing one side of the prescribed area for 15 minutes, then turned 90 degrees clockwise and repeated the task on a new side continuing this rotation for the entire 220 minute sampling period.

Shoveling

Participants dug a hole of at least two cubic feet (ft³) using a standard sized shovel. Soil was placed next to the hole and in five-gallon buckets and participants subsequently refilled the hole with the soil that had been removed. Participants repeated this series of tasks while rotating 90 degrees clockwise every 15 minutes and continued for a sampling period duration of 220 minutes. A well-mixed portion of the soil from this scenario was saved for use in the sieving scenario.

Sieving

Participants sieved the material remaining from the digging scenario in hand-held sieves supplied by the Work Assignment Manager (WAM). The participants attempted to refill the hole with the soil as it passed through the screen. Participants continued the sieving process while rotating clockwise 90 degrees every 15 minutes and continued for a sampling period duration of 220 minutes.

Chiseling

Participants used a hammer or chisel to break or chip stones, boulders and rock formations and generally broke apart solid matrices. A small area was worked upon for the entire 220 minute period.

AIR SAMPLING ACTIVITIES & RESULTS

Mobilizations

REAC personnel mobilized for the initial sampling effort in the Sapphire Mine area on Monday March 26, 2007. Air and soil sampling for asbestos events spanned Tuesday March 27, 2007 from approximately 0900 through 1800; Wednesday March 28, 2007 from approximately 0800 through 1730, and Thursday March 29, 2007 from approximately 0800 through 1800. Three background ambient air samples per day located within a few feet of each other were taken at an up-gradient location as selected by the WAM.

REAC personnel mobilized for a second sampling effort in the Sapphire Mine area on Monday July 23, 2007. Air and soil sampling for asbestos events spanned Tuesday July 24, 2007 from approximately 0900 through 1800; Wednesday July 25, 2007 from approximately 0900 through 1700, and Thursday July 26, 2007 from approximately 0900 through 1300. Severe weather during the afternoon of Thursday July 26, 2007 precluded sampling. Three background ambient air samples were taken on days one and two and two background samples on day three.

During both mobilizations, samples collected at locations Background 1, Background 2, and Background 3 were completed with Aircon II sampling pumps set to collect continuously for the duration of the workday at a flow rate of 10 L/min. Background samples typically ran for nine to ten hours. However, background samples on day three of the second mobilization ran for about five hours due to severe weather.

Analysis of Samples

REAC personnel initially demobilized from the Sapphire Mine area on Friday March 30, 2007 and all air samples were sent via Fedex to REAC for arrival on Tuesday April 3, 2007. Upon EPA Region IV securing Batta Laboratories, Inc. (Batta) in Newark, Delaware (DE) for completion of asbestos in air analyses, samples were forwarded by REAC via FedEx on Tuesday July 3, 2007. The second demobilization was completed on Friday July 27, 2007 and all samples were forwarded to REAC for arrival on Tuesday July 31, 2007. Upon receiving instructions from EPA Region IV, samples were forwarded to Batta on Friday August 31, 2007.

Samples were delivered to Batta for Transmission Electron Microscopy (TEM) analysis based on the *International Organization for Standardization (ISO), International Standard, ISO 10312 (1995(E)), Ambient Air – Determination of Asbestos Fibers – direct transfer TEM Methodology*.

A direct sample preparation technique is preferred for analyzing asbestos samples because there is less disruption to the structures, fibers, matrices, and bundles than the indirect preparation method. The direct method essentially leaves the particles in the same position on the filter as when they were deposited during sample collection. A high and low volume sample was collected for ABS activities in order to increase the likelihood that at least one sample could be analyzed by the direct preparation method (ISO 10312). The high and low volume samples were co-located and collected over the same sampling period in order to estimate the same exposure. When the high volume sample was overloaded with extraneous particulate, the corresponding low volume

sample was analyzed and the high volume sample was archived. This approach facilitated comparability between samples.

If both the high and low volume samples for a particular activity were unable to be analyzed by the direct preparation method due to overloading of dust or contaminant, the indirect preparation was utilized on the high or low sample. Batta analyzed overloaded samples via *International Organization for Standardization (ISO), International Standard, ISO 13794 (1999), Ambient air – Determination of Asbestos Fibers – indirect transfer TEM Methodology*.

ABS

REAC personnel completed ABS at two distinct areas of the Site. The Lower Area was reached by traveling approximately 50 yards through the woods, then turning north upstream along a small creek for about 25 yards. All four activities took place in this area and there were several sheer rock walls where the chiseling ABS was completed. Approximately 50 yards up a steep trail was an opening to flat ground where Upper Area ABS was completed. Raking, shoveling, and sieving were completed in the Upper Area. No chiseling ABS was completed in the Upper Area. Natural growth in both areas resulted in an inability to record accurate geographical sample location data with a Global Positioning System (GPS). Figure 1 depicts approximate locations of the Upper and Lower ABS Areas, command post, and background sampling locations.

For all air sampling locations, an asbestos sampling train consisting of a 0.8-micron (μm), 25-millimeter (mm) mixed cellulose ester (MCE) filter connected to a sampling pump was used. The top cover from the cowl extension on the sampling cassette was removed (“open-face”) and the cassette oriented face down at an angle of at least 45 degrees. The perimeter and reference air samples were collected using AirCon II samplers, calibrated to 10-liters (L)/minute (min). For ABS activities, QuickTake 30 sampling pumps calibrated to 10-L/min and SKC personal sampling pumps calibrated to a flow rate of 3.0 L/min were used to collect high and low volume personal air samples over a 220 minute period.

Air sampling was completed within areas of dense vegetation, precluding the use of instruments to record accurate geographical sampling location data. Figure 1 depicts the Site with approximate locations of the Upper and Lower Areas, Command Post, and Background Samples. Tables in the body of the report reflect Total Asbestos results as Phase Contrast Microscopy Equivalent (PCME) and Total Transmission Electron Microscopy – EPA Superfund Method (TEM-EPASM) air concentrations in structures per cubic centimeter (s/cc) for those samples equal to or above the analytical sensitivity. PCME fibers are equivalent in dimension to fibers that can be detected under low magnification with a Phase Contrast Microscope (PCM). PCME structures are defined as asbestos structures with the following dimensions: length greater than 5.0 microns (μm), a width greater than or equal to 0.25 μm and an aspect ratio (length/width) greater than 3 to 1. The PCME results are a subset of the TEM-EPASM results and generally include the longer fibers. As a rule of thumb, if only TEM-EPASM structures are reported, then the majority of the structures are short (less than 5.0 μm in length). Tables after the body of the report shows results for PCME and Total TEM-EPASM methods for a cross-section of all analytes that were detected above the analytical sensitivity for any air sample. This cross-section of analytes includes actinolite, anthophyllite, total amphibole, total asbestos, and tremolite.

Daily Background

A total of 16 background samples were taken over the two mobilizations. Two or three background samples were co-located each day and sampling times ranged from 290 to 570

minutes. Sample #43222 on July 24, 2007 was damaged during packing and not sent to the laboratory. All background samples were negative for asbestos at the prescribed analytical sensitivity and results for total asbestos are shown in Table 1 for all background samples.

Raking

REAC personnel completed three raking ABS events during each mobilization. Three personal and two perimeter samples were taken during each activity and a grand total of 20 samples, including two colocated samples, were sent to the laboratory for analysis.

There are no personal samples associated with the ABS event of March 29, 2007. Personal high volume sample #0-253-0072 was not sent to the laboratory due to an air sampling pump fault that resulted in collection of an insufficient sample volume. For unknown reasons, corresponding low volume sample #0-253-0071 also was not analyzed. Perimeter samples #43224 and #43260 were not sent to the laboratory due to damaged filters. Due to heavy rainfall, only one personal sample was analyzed from the event of July 26, 2007.

Positive results (above the analytical sensitivity) were detected in Upper Area raking perimeter samples #0-253-0007, #0-253-0008, #0-253-0027, #0-253-0029, and #43259 and personal high volume samples #0-253-0013, #0-253-0033, and #43261. Total asbestos air concentrations are shown in Table 2 on Page 6 for samples associated with the raking ABS in the Upper Area. Results for a cross-section analytes for samples associated with this event are shown in Table 10 on page 18.

TABLE 1
Asbestos in Air Sampling
Total Asbestos Results
Daily Background
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Sample Date	Event ID	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0001	3/27/2007	Trip #1 Day 1	ND	ND	0.0001
0-253-0002	3/27/2007	Trip #1 Day 1	ND	ND	0.0001
0-253-0003	3/27/2007	Trip #1 Day 1	ND	ND	0.0001
0-253-0024	3/28/2007	Trip #1 Day 2	ND	ND	0.0001
0-253-0025	3/28/2007	Trip #1 Day 2	ND	ND	0.0001
0-253-0026	3/28/2007	Trip #1 Day 2	ND	ND	0.0001
0-252-0057	3/29/2007	Trip #1 Day 3	ND	ND	0.0001
0-253-0058	3/29/2007	Trip #1 Day 3	ND	ND	0.0001
0-253-0059	3/29/2007	Trip #1 Day 3	ND	ND	0.0001
43221	7/24/2007	Trip #2 Day 1	ND	ND	0.0001
43223	7/24/2007	Trip #2 Day 1	ND	ND	0.0001
43246	7/25/2007	Trip #2 Day 2	ND	ND	0.0001
43247	7/25/2007	Trip #2 Day 2	ND	ND	0.0001
43248	7/25/2007	Trip #2 Day 2	ND	ND	0.0001
43267	7/26/2007	Trip #2 Day 3	ND	ND	0.0001
43268	7/26/2007	Trip #2 Day 3	ND	ND	0.0001

NOTE: All results and analytical sensitivity in structures per cubic centimeter (s/cc)

All data imported directly from electronic data deliverable to preclude transcription errors

Results of ND indicate the analyte was not detected at or below the analytical sensitivity as specified in the analytical sensitivity column

PCME = Phase Contrast Microscopy Equivalent

TEM = Transmission Electron Microscopy, EPASM = Environmental Protection Agency Superfund Method

TABLE 2
Asbestos in Air Sampling
Total Asbestos Results
Raking – Upper Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0007	Rake Perimeter 1 AM	3/27/2007	Trip #1 Day 1 AM	0.001	0.001	0.001
0-253-0008	Rake Perimeter 2 AM	3/27/2007	Trip #1 Day 1 AM	0.002	0.002	0.001
0-253-0009	Rake Perimeter 3 AM	3/27/2007	Trip #1 Day 1 AM	ND	ND	0.001
0-253-0013	Rake AM High	3/27/2007	Trip #1 Day 1 AM	0.015	0.017	0.001
0-253-0027	Rake Perimeter 1 AM	3/28/2007	Trip #1 Day 2 AM	0.002	0.002	0.001
0-253-0028	Rake Perimeter 2 AM	3/28/2007	Trip #1 Day 2 AM	ND	ND	0.001
0-252-0029	Rake Perimeter 3 AM	3/28/2007	Trip #1 Day 2 AM	0.001	0.002	0.001
0-253-0033	Rake AM High	3/28/2007	Trip #1 Day 2 AM	0.007	0.010	0.001
0-253-0034	Rake AM High Dup	3/28/2007	Trip #1 Day 2 AM	ND	ND	0.001
43258	Rake Perimeter 3 PM	7/24/2007	Trip #2 Day 2 PM	ND	ND	0.001
43259	Rake Perimeter 1 PM	7/25/2007	Trip #2 Day 2 PM	0.002	0.003	0.001
43261	Rake PM High	7/25/2007	Trip #2 Day 2	0.007	0.022	0.001

NOTE: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate the analyte was not detected at or below the analytical sensitivity as specified in the analytical sensitivity column
Perimeter 1 and 2 samples are downwind, Perimeter 3 samples are upwind
PCME = Phase Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

Positive results (above the analytical sensitivity) were detected in Lower Area raking perimeter samples #0-253-0064 and #43275. Total asbestos air concentrations are shown in Table 3 for samples associated with the raking ABS in the Lower Area. Results for the cross-section of analytes for samples associated with this event are shown in Table 11 on page 20.

TABLE 3
Asbestos in Air Sampling
Total Asbestos Results
Raking – Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0064	Rake – Perimeter 1 AM	3/29/2007	Trip #1 Day 3 AM	0.002	0.002	0.001
0-253-0065	Rake Perimeter 2 AM	3/29/2007	Trip #1 Day 3 AM	ND	ND	0.001
0-253-0066	Rake Perimeter 3 AM	3/29/2007	Trip #1 Day 3 AM	ND	ND	0.001
0-253-0067	Rake Perimeter 1 AM Dup	3/29/2007	Trip #1 Day 3 AM	ND	ND	0.001
43225	Rake Perimeter 2 AM	7/24/2007	Trip #2 Day 1 AM	ND	ND	0.001
43226	Rake Perimeter 3 AM	7/24/2007	Trip #2 Day 1 AM	ND	ND	0.001
43231	Rake AM High	7/24/2007	Trip #2 Day 1 AM	ND	ND	0.001
43275	Rake AM High	7/26/2007	Trip #2 Day 3 AM	0.038	0.062	0.001

NOTE: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate the analyte was not detected at or below the analytical sensitivity as specified in the analytical sensitivity column
Perimeter 1 and 2 samples are downwind, Perimeter 3 samples are upwind
PCME = Phase Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

On July 26, 2007 the morning shoveling and raking events in the lower area were completed in very close proximity. One set of perimeter samplers was sufficient to surround both activities. The results from those perimeter samples are found in Table 5 on Page 11 with the nomenclature “shovel/rake”.

Shoveling

REAC personnel completed three shoveling ABS events during each mobilization. Three personal and two perimeter samples were taken during each activity and a grand total of 27 samples, including four colocated samples, were sent to the laboratory for analysis.

Positive results (above the analytical sensitivity) were detected in Upper Area shoveling perimeter samples #0-253-0005, #0-253-0006, and #43229 and personal high volume samples #0-253-0011, #0-253-0069, #0-253-0070 and #43233. Total asbestos air concentrations are shown on page 9 in Table 4 for all samples associated with the shoveling ABS in the Upper Area. Results for the cross-section of analytes for all samples associated with this event are shown in Table 12 on page 22.

Positive results (above the analytical sensitivity) were detected in Lower Area shoveling perimeter samples #0-253-0030, #43239, #43269, #43270, #43271, and #43272 and personal high volume samples #0-253-0036, #43235, and #43274. Total asbestos air concentrations are shown on page 11 in Table 5 for all samples associated with the shoveling ABS in the Lower Area. Results for the cross-section of analytes for all samples associated with this event are shown in Table 13, page 24.

On July 26, 2007 the morning shoveling and raking events in the lower area were completed in very close proximity. One set of perimeter samplers was sufficient to surround both activities. The results from those perimeter samples are noted below with the nomenclature “shovel/rake”.

Sieving

REAC personnel completed a total of five sieving ABS events over the two mobilizations. Three personal and two perimeter samples were taken during each activity and a grand total of 21 samples, including three duplicate samples, were sent to the laboratory for analysis. Perimeter samples from the afternoon of March 28, 2007 and the morning of July 25, 2007 were combined with the chiselling ABS and results pertaining to those samples can be found under the chiseling section. Due to heavy rainfall, only one personal sample was analyzed from the event of July 26, 2007.

Positive results (above the analytical sensitivity) were detected in Upper Area sieving perimeter samples #0-253-0014, #0-253-0015, #0-253-0016, and #0-253-0079 and personal high volume samples #0-253-0021 and #0-253-0085. Total asbestos air concentrations are shown on Page 13 in Table 6 for all samples associated with the sieving ABS in the Upper Area. Results for the cross-section of analytes for all samples associated with this event are shown in Table 14 on page 27.

Positive results (above the analytical sensitivity) were detected in Lower Area personal high volume samples #0-253-0043, #0-253-0044, #43256, #43263, and #43273. Total asbestos air concentrations are shown in Table 7 on page 14 for all samples associated with the sieving ABS in the Lower Area. Results for the cross-section of analytes for all samples associated with this event are shown in Table 15 on page 29.

On March 28, 2007 and July 25, 2007 the sieving and chiseling events in the lower area were completed in very close proximity. One set of perimeter samplers was sufficient to surround both activities. The results from those perimeter samples are found in Table 8 on Page 14 with the nomenclature “chisel/sieve”.

TABLE 4
Asbestos in Air Sampling
Total Asbestos Results
Shoveling – Upper Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0004	Shovel Perimeter 1 AM	3/27/2007	Trip #1 Day 1 AM	ND	ND	0.001
0-253-0005	Shovel Perimeter 2 AM	3/27/2007	Trip #1 Day 1 AM	0.004	0.004	0.001
0-253-0006	Shovel Perimeter 3 AM	3/27/2007	Trip #1 Day 1 AM	0.001	0.001	0.001
0-253-0011	Shovel AM High	3/27/2007	Trip #1 Day 1 AM	0.006	0.012	0.001
0-253-0060	Shovel Perimeter 1 AM	3/29/2007	Trip #1 Day 3 AM	ND	ND	0.001
0-253-0061	Shovel Perimeter 2 AM	3/29/2007	Trip #1 Day 3 AM	ND	ND	0.001
0-252-0062	Shovel Perimeter 3 AM	3/29/2007	Trip #1 Day 3 AM	ND	ND	0.001
0-253-0063	Shovel Perimeter 1 AM Dup	3/29/2007	Trip #1 Day 3 AM	ND	ND	0.001
0-253-0069	Shovel AM High	3/29/2007	Trip #1 Day 3 AM	0.003	0.003	0.001
0-253-0070	Shovel AM High Dup	3/29/2007	Trip #1 Day 3 AM	0.010	0.017	0.001
43227	Shovel Perimeter 1 AM	7/24/2007	Trip #2 Day 1 AM	ND	ND	0.001
43228	Shovel Perimeter 2 AM	7/24/2007	Trip #2 Day 1 AM	ND	ND	0.001
43229	Shovel Perimeter 3 AM	7/24/2007	Trip #2 Day 1 AM	0.001	0.001	0.001
43233	Shovel AM High	7/24/2007	Trip #2 Day 1 AM	0.036	0.066	0.001

NOTE: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate the analyte was not detected at or below the analytical sensitivity as specified in the analytical sensitivity column
Perimeter 1 and 2 samples are downwind, Perimeter 3 samples are upwind
PCME = Phase Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

Chiseling

REAC personnel completed a total of five chiseling ABS events over the two mobilizations. Chiseling ABS occurred only in the Lower Area where exposed rock walls were sampled. Three personal and two perimeter samples were taken during each activity and a grand total of 23 samples, including four duplicate samples, were sent to the laboratory for analysis. On March 27, 2007 personal sample #0-253-0023 was not sent to the laboratory for analysis due to a damaged cassette. Low volume pair #0-253-0022 was analyzed as the substitute sample. On July 24, 2007, personal sample #43237 was overloaded and not successfully analyzed by the laboratory.

Low volume pair #43236 was analyzed as the substitute sample. Perimeter sample #0-253-0074 was acquired on March 29, 2007, but was not sent to the laboratory due to sampler pump malfunction that resulted in collection of an insufficient sample volume.

Positive results (above the analytical sensitivity) were detected in all personal and perimeter samples through the five events EXCEPT for #0-253-0076, #43243, and #43252. Total asbestos air concentrations are shown on page 14 in Table 8 for all samples associated with the chiseling ABS in the Lower Area. Results for the cross-section of analytes for all samples associated with this event are shown in Table 16 on page 30.

On March 28, 2007 and July 25, 2007 the chiseling and sieving events in the lower area were completed in very close proximity. One set of perimeter samplers was sufficient to surround both activities. The results from those perimeter samples are noted below with the nomenclature “chisel/sieve”.

A final data validation report for each mobilization for asbestos in air for a randomly chosen subset of positive samples can be found in Appendix A.

All air sampling field blanks and lot blanks were non-detect (below the analytical sensitivity) for asbestos. Sample numbers 0-253-0019, 0-253-0022, 0-253-0045, 0-253-0083, 43236, 43263, and 43275 had Total Asbestos results as PCME that approached or exceeded the Occupational Health and Safety Administration (OSHA) Permissible Exposure Limit (PEL) of 0.1 structures per cubic centimeter (s/cc).

Soil Sampling for Asbestos

Soil sampling for asbestos was conducted using REAC SOP #2012, *Soil Sampling*. Laboratory analysis on all asbestos in soil samples was completed following California Air Resources Board (CARB) modified 435 method using Polarized Light Microscopy (PLM). The reporting limit was 0.25% asbestos in soil with qualifiers for trace amounts of less than 0.25% asbestos in soil. Samples were also analyzed by American Society for Testing and Materials (ASTM) D422-63(2002), *Standard Test Method for Particle-Size Analysis of Soils* and ASTM D6565-00(2005), *Standard Test Method for Determination of Water (Moisture) Content of the Soil by the Time-Domain Reflectometry (TDR) Method*.

TABLE 5
Asbestos in Air Sampling
Total Asbestos Results
Shoveling – Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0030	Shovel Perimeter 1 AM	3/28/2007	Trip #1 Day 2 AM	0.002	0.002	0.001
0-253-0031	Shovel Perimeter 2 AM	3/28/2007	Trip #1 Day 2 AM	ND	ND	0.001
0-253-0032	Shovel Perimeter 3 AM	3/28/2007	Trip #1 Day 2 AM	ND	ND	0.001
0-253-0036	Shovel AM High	3/28/2007	Trip #1 Day 2 AM	0.008	0.017	0.001
43235	Shovel PM High	7/24/2007	Trip #2 Day 1 PM	0.037	0.093	0.003
43238	Shovel Perimeter 1 PM	7/24/2007	Trip #2 Day 1 PM	ND	ND	0.001
43239	Shovel Perimeter 2 PM	7/24/2007	Trip #2 Day 1 PM	0.002	0.003	0.001
43240	Shovel Perimeter 3 PM	7/24/2007	Trip #2 Day 1 PM	ND	0.002	0.001
43269	Shovel/Rake Perimeter 1 AM	7/26/2007	Trip #2 Day 3 AM	0.001	0.003	0.001
43270	Shovel/Rake Perimeter 2 AM	7/26/2007	Trip #2 Day 3 AM	0.004	0.007	0.001
43271	Shovel/Rake Perimeter 2 AM Dup	7/26/2007	Trip #2 Day 3 AM	0.001	0.008	0.001
43272	Shovel/Rake Perimeter 3 AM	7/26/2007	Trip #2 Day 3 AM	0.001	0.002	0.001
43274	Shovel AM High Dup	7/26/2007	Trip #2 Day 3 AM	0.017	0.034	0.001

NOTE: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate the analyte was not detected at or below the analytical sensitivity as specified in the analytical sensitivity column
Perimeter 1 and 2 samples are downwind, Perimeter 3 samples are upwind
PCME = Phase Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

Soil samples were taken by REAC personnel from locations where the four activity-based sampling events occurred. EPA Region IV personnel took four-point composite and grab samples from locations chosen throughout the Site at their discretion. The four-point composite samples were divided into one 8-ounce glass jar for California Air Resources Board (CARB) Method 435 Analysis by Polarized Light Microscopy (PLM) for determination of asbestos in soil, one 16-ounce jar for American Society for Testing and Materials (ASTM) Method D422-63 (2007), *Standard Test Method for Particle Size Analysis of Soils*, and ASTM D2216-05, *Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and rock by Mass*. Both jars from one four-point composite sample were assigned identical sample numbers to signify the sample being acquired from one unique location. Unless specified by the WAM or EPA Region IV, soil samples were sampled as four-point composites, allowing for a detection limit of 0.25% asbestos in soil.

A total of 11 four-point composite and three grab soil samples were taken during the initial mobilization and four four-point composite samples were taken during the second mobilization. Table 9 on Page 17 shows positive results above the reporting limit of 0.25% for all but composite sample #0-253-0096 for asbestos in soil.

A copy of the final laboratory reports for soil analyses can be found in Appendix B.

FUTURE ACTIVITIES

No future activities are anticipated at this time.

TABLE 6
Asbestos in Air Sampling
Total Asbestos Results
Sieving – Upper Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0014	Sieve Perimeter 1 PM	3/27/2007	Trip #1 Day 1 PM	0.003	0.003	0.001
0-253-0015	Sieve Perimeter 2 PM	3/27/2007	Trip #1 Day 1 PM	0.005	0.010	0.001
0-253-0016	Sieve Perimeter 3 PM	3/27/2007	Trip #1 Day 1 PM	0.001	0.001	0.001
0-253-0021	Sieve - PM High	3/27/2007	Trip #1 Day 1 PM	0.022	0.032	0.001
0-253-0077	Sieve Perimeter 1 PM	3/29/2007	Trip #1 Day 3 PM	ND	ND	0.001
0-253-0078	Sieve Perimeter 2 PM	3/29/2007	Trip #1 Day 3 PM	ND	ND	0.001
0-252-0079	Sieve Perimeter 3 PM	3/29/2007	Trip #1 Day 3 PM	0.001	0.005	0.001
0-253-0080	Sieve Perimeter 1 Dup PM	3/29/2007	Trip #1 Day 3 PM	ND	ND	0.001
0-253-0034	Sieve - PM High	3/29/2007	Trip #1 Day 3 PM	0.005	0.016	0.001

NOTE: All results and analytical sensitivity in structures per cubic centimeter (s/cc)

All data imported directly from electronic data deliverable to preclude transcription errors

Results of ND indicate the analyte was not detected at or below the analytical sensitivity as specified in the analytical sensitivity column

Perimeter 1 and 2 samples are downwind, Perimeter 3 samples are upwind

PCME = Phase Contrast Microscopy Equivalent

TEM = Transmission Electron Microscopy

EPASM = Environmental Protection Agency Superfund Method

TABLE 7
Asbestos in Air Sampling
Total Asbestos Results
Sieving – Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0043	Sieve – PM High	3/28/2007	Trip #1 Day 2 PM	0.035	0.042	0.001
0-253-0044	Sieve – PM High Dup	3/28/2007	Trip #1 Day 2 PM	0.039	0.057	0.001
43256	Sieve – AM High	3/28/2007	Trip #1 Day 2 AM	0.070	0.130	0.001
43263	Sieve – PM High	3/28/2007	Trip #1 Day 2 PM	0.140	0.210	0.001
43273	Sieve – AM high Dup	3/28/2007	Trip #1 Day 2 AM	0.025	0.054	0.001

NOTE: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate the analyte was not detected at or below the analytical sensitivity as specified in the analytical sensitivity column
Perimeter 1 and 2 samples are downwind, Perimeter 3 samples are upwind
PCME = Phase Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 8
Asbestos in Air Sampling
Total Asbestos Results
Chiseling – Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0017	Chisel Perimeter 1 PM	3/27/2007	Trip #1 Day 1 PM	0.005	0.005	0.001
0-253-0018	Chisel Perimeter 2 PM	3/27/2007	Trip #1 Day 1 PM	0.008	0.019	0.001
0-253-0019	Chisel Perimeter 3 PM	3/27/2007	Trip #1 Day 1 PM	0.082	0.220	0.001
0-253-0022	Chisel PM Low	3/27/2007	Trip #1 Day 1 PM	2.10	5.40	0.045
0-253-0039	Chisel/Sieve Perimeter 1 PM	3/28/2007	Trip #1 Day 2 PM	0.003	0.007	0.001
0-253-0040	Chisel/Sieve Perimeter 2 PM	3/28/2007	Trip #1 Day 2 PM	0.003	0.011	0.001

TABLE 8 (continued)
Asbestos in Air Sampling
Total Asbestos Results
Chiseling – Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	PCME	Total TEM EPASM	Analytical Sensitivity
0-252-0041	Chisel/Sieve Perimeter 3 PM	3/28/2007	Trip #1 Day 2 PM	0.001	0.002	0.001
0-253-0045	Chisel - PM Low	3/28/2007	Trip #1 Day 2 PM	0.290	0.450	0.004
0-253-0073	Chisel Perimeter 1 PM	3/29/2007	Trip #1 Day 3 PM	0.001	0.001	0.001
0-253-0075	Chisel Perimeter 2 PM	3/29/2007	Trip #1 Day 3 PM	0.003	0.006	0.001
0-253-0076	Chisel Perimeter 1 Dup PM	3/29/2007	Trip #1 Day 3 PM	ND	ND	0.001
0-253-0081	Chisel – PM Low	3/29/2007	Trip #1 Day 3 PM	0.070	0.150	0.012
0-253-0083	Chisel – PM High Dup	3/29/2007	Trip #1 Day 3 PM	4.00	25.0	0.212
43236	Chisel – PM Low	7/24/2007	Trip #2 Day 1 PM	0.280	0.990	0.004
43241	Chisel Perimeter 1 PM	7/24/2007	Trip #2 Day 1 PM	0.024	0.060	0.001
43242	Chisel Perimeter 2 PM	7/24/2007	Trip #2 Day 1 PM	ND	0.001	0.001
43243	Chisel Perimeter 3 PM	7/24/2007	Trip #2 Day 1 PM	ND	ND	0.001

NOTE: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate the analyte was not detected at or below the analytical sensitivity as specified in the analytical sensitivity column
Perimeter 1 and 2 samples are downwind, Perimeter 3 samples are upwind
PCME = Phase Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 8 (continued)
Asbestos in Air Sampling
Total Asbestos Results
Chiseling – Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	PCME	Total TEM EPASM	Analytical Sensitivity
43249	Chisel/Sieve Perimeter 1 AM	7/25/2007	Trip #2 Day 2 AM	0.003	0.006	0.001
43250	Chisel/Sieve Perimeter 1 AM Dup	7/25/2007	Trip #2 Day 2 AM	0.002	0.004	0.001
43251	Chisel/Sieve Perimeter 3 AM	7/25/2007	Trip #2 Day 2 AM	0.001	0.002	0.001
43252	Chisel/Sieve Perimeter 2 AM	7/25/2007	Trip #2 Day 2 AM	ND	ND	0.001
43253	Chisel – AM High	7/25/2007	Trip #2 Day 2 AM	0.075	0.180	0.001
43254	Chisel – AM High Dup	7/25/2007	Trip #1 Day 2 AM	0.058	0.150	0.001

NOTE: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate the analyte was not detected at or below the analytical sensitivity as specified in the analytical sensitivity column
Perimeter 1 and 2 samples are downwind, Perimeter 3 samples are upwind
PCME = Phase Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 9
Asbestos in Soil Sampling
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Event	Collection Method	Result (% asbestos)
0-253-0049	Chisel – Day 1	Trip #1 Soil	Composite	15.0
0-253-0050	Shovel – Day 2	Trip #1 Soil	Composite	2.25
0-253-0051	OSC – Upper Site	Trip #1 Soil	Composite	3.25
0-253-0052	OSC – Upper Site Dup	Trip #1 Soil	Composite	5.50
0-253-0053	Rake – Day 1	Trip #1 Soil	Composite	7.0
0-253-0054	Rake – Day 1 Dup	Trip #1 Soil	Composite	6.25
0-253-0055	Rake – Day 2	Trip #1 Soil	Composite	3.75
0-253-0093	Chisel – Day 2	Trip #1 Soil	Composite	12.0
0-253-0094	Chisel – Day 3	Trip #1 Soil	Composite	9.25
0-253-0095	Shovel – Day 3	Trip #1 Soil	Composite	ND
0-253-0096	Rake – Day 3	Trip #1 Soil	Composite	2.75
0-253-0100	OSC – JLW2	Trip #1 Soil	Grab	4.25
0-253-0101	OSC – JLW3	Trip #1 Soil	Grab	3.50
0-253-0102	OSC – JLW1	Trip #1 Soil	Grab	1.75
43198	Upper Site	Trip #2 Soil	Composite	4.25
43200	Upper Site Dup	Trip #2 Soil	Composite	6.25
43202	Lower Site – Right	Trip #2 Soil	Composite	15.0
43204	Lower Site – Left	Trip #2 Soil	Composite	5.0

NOTE: All results reported in percent (%) asbestos

All samples have a reporting limit of 0.25%

All data imported directly from electronic data deliverables to preclude transcription errors

Results of ND indicate the analyte was not detected at or below the analytical sensitivity as specified

OSC = On-Scene Coordinator

TABLE 10
Asbestos in Air Sampling Results
Raking – Upper Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0007	Rake – Perimeter 1 AM	3/27/2007	Trip #1 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.001	0.001	
				Total Amphibole	0.001	0.001	
				Total Asbestos	0.001	0.001	
				tremolite (TR)	ND	ND	
0-253-0008	Rake - Perimeter 2 AM	3/27/2007	Trip #1 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.002	0.002	
				Total Amphibole	0.002	0.002	
				Total Asbestos	0.002	0.002	
				tremolite (TR)	ND	ND	
0-253-0009	Rake – Perimeter 3 AM	3/27/2007	Trip #1 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				Tremolite (TR)	ND	ND	
0-253-0013	Rake – AM High	3/27/2007	Trip #1 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.015	0.017	
				Total Amphibole	0.015	0.017	
				Total Asbestos	0.015	0.017	
				Tremolite (TR)	ND	ND	
0-253-0027	Rake – Perimeter 1 AM	3/28/2007	Trip #1 Day 2 AM	actinolite (AC)	ND	ND	0.001
				Anthophyllite (AN)	0.002	0.002	
				Total Amphibole	0.002	0.002	
				Total Asbestos	0.002	0.002	
				tremolite (TR)	ND	ND	
0-253-0028	Rake - Perimeter 2 AM	3/28/2007	Trip #1 Day 2 AM	actinolite (AC)	ND	ND	0.001
				Anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & @ samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 10 (continued)
Asbestos in Air Sampling Results
Raking – Upper Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0029	Rake – Perimeter 3 AM	3/28/2007	Trip #1 Day 2 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.001	0.002	
				Total Amphibole	0.001	0.002	
				Total Asbestos	0.001	0.002	
				tremolite (TR)	ND	ND	
0-253-0033	Rake – AM High	3/28/2007	Trip #1 Day 2 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.007	0.010	
				Total Amphibole	0.007	0.010	
				Total Asbestos	0.007	0.010	
				tremolite (TR)	ND	ND	
0-253-0034	Rake – AM High Dup	3/28/2007	Trip #1 Day 2 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				Tremolite (TR)	ND	ND	
43258	Rake – Perimeter 3 PM	7/25/2007	Trip #2 Day 2 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
43259	Rake – Perimeter 1 PM	7/25/2007	Trip #2 Day 2 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.002	0.003	
				Total Amphibole	0.002	0.003	
				Total Asbestos	0.002	0.003	
				tremolite (TR)	ND	ND	
43261	Rake – PM High	7/25/2007	Trip #2 Day 2 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.007	0.022	
				Total Amphibole	0.007	0.022	
				Total Asbestos	0.007	0.022	
				tremolite (TR)	ND	ND	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & 2 samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 11
Asbestos in Air Sampling Results
Raking – Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0064	Rake – Perimeter 1 AM	3/29/2007	Trip #1 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.002	0.002	
				Total Amphibole	0.002	0.002	
				Total Asbestos	0.002	0.002	
				tremolite (TR)	ND	ND	
0-253-0065	Rake – Perimeter 2 AM	3/29/2007	Trip #1 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
0-253-0066	Rake – Perimeter 3 AM	3/29/2007	Trip #1 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				Tremolite (TR)	ND	ND	
0-253-0067	Rake – Perimeter 1 AM Dup	3/29/2007	Trip #1 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
43225	Rake – Perimeter 2 AM	7/24/2007	Trip #2 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
43226	Rake – Perimeter 3 AM	7/24/2007	Trip #2 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & 2 samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 11 (continued)
Asbestos in Air Sampling Results
Raking – Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
43231	Rake – AM High	7/24/2007	Trip #2 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
43275	Rake – PM High	7/26/2007	Trip #2 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.038	0.062	
				Total Amphibole	0.038	0.062	
				Total Asbestos	0.038	0.062	
				tremolite (TR)	ND	ND	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & 2 samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 12
Asbestos in Air Sampling Results
Shoveling – Upper Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0004	Shovel – Perimeter 1 AM	3/27/2007	Trip #1 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
0-253-0005	Shovel – Perimeter 2 AM	3/27/2007	Trip #1 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.004	0.004	
				Total Amphibole	0.004	0.004	
				Total Asbestos	0.004	0.004	
				tremolite (TR)	ND	ND	
0-253-0006	Shovel – Perimeter 3 AM	3/27/2007	Trip #1 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.001	0.001	
				Total Amphibole	0.001	0.001	
				Total Asbestos	0.001	0.001	
				Tremolite (TR)	ND	ND	
0-253-0011	Shovel – AM High	3/27/2007	Trip #1 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.006	0.012	
				Total Amphibole	0.006	0.012	
				Total Asbestos	0.006	0.012	
				tremolite (TR)	ND	ND	
0-253-0060	Shovel – Perimeter 1 AM	3/29/2007	Trip #1 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
0-253-0061	Shovel – Perimeter 2 AM	3/29/2007	Trip #1 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & 2 samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 12 (continued)
Asbestos in Air Sampling Results
Shoveling – Upper Area
Sapphire Mine Asbestos Site
Jackson County, NC
Jul7 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0062	Shovel – Perimeter 3 AM	3/29/2007	Trip #1 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
0-253-0063	Shovel – Perimeter 1 AM Dup	3/29/2007	Trip #1 Day 23AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
0-253-0069	Shovel – AM High	3/29/2007	Trip #1 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.003	0.003	
				Total Amphibole	0.003	0.003	
				Total Asbestos	0.003	0.003	
				Tremolite (TR)	ND	ND	
0-253-0070	Shovel – AM High Dup	3/29/2007	Trip #1 Day 3 AM	actinolite (AC)	ND	0.001	0.001
				anthophyllite (AN)	0.010	0.015	
				Total Amphibole	0.010	0.017	
				Total Asbestos	0.010	0.017	
				tremolite (TR)	ND	0.001	
43227	Shovel – Perimeter 1 AM	7/24/2007	Trip #2 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
43228	Shovel – Perimeter 2 AM	7/24/2007	Trip #2 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & 2 samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 12 (continued)
Asbestos in Air Sampling Results
Shoveling – Upper Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
43229	Shovel – Perimeter 3 AM	7/24/2007	Trip #2 Day 1 AM	actinolite (AC)	0.001	0.001	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	0.001	0.001	
				Total Asbestos	0.001	0.001	
				tremolite (TR)	ND	ND	
43233	Shovel – AM High	7/24/2007	Trip #2 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.036	0.066	
				Total Amphibole	0.036	0.066	
				Total Asbestos	0.036	0.066	
				tremolite (TR)	ND	ND	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & 2 samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 13
Asbestos in Air Sampling Results
Shoveling Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0030	Shovel – Perimeter 1 AM	3/28/2007	Trip #1 Day 2 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.002	0.002	
				Total Amphibole	0.002	0.002	
				Total Asbestos	0.002	0.002	
				tremolite (TR)	ND	ND	
0-253-0031	Shovel – Perimeter 2 AM	3/28/2007	Trip #1 Day 2 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	

TABLE 13 (continued)
Asbestos in Air Sampling Results
Shoveling - Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0032	Shovel – Perimeter 3 AM	3/28/2007	Trip #1 Day 2 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
0-253-0036	Shovel – AM High	3/28/2007	Trip #1 Day 2 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.008	0.017	
				Total Amphibole	0.008	0.017	
				Total Asbestos	0.008	0.017	
				tremolite (TR)	ND	ND	
43235	Shovel – AM High	7/24/2007	Trip #2 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.037	0.093	
				Total Amphibole	0.037	0.093	
				Total Asbestos	0.037	0.093	
				Tremolite (TR)	ND	ND	
43238	Shovel – Perimeter 1 PM	7/24/2007	Trip #2 Day 1 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
43239	Shovel – Perimeter 2 PM	7/24/2007	Trip #2 Day 1 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.002	0.003	
				Total Amphibole	0.002	0.003	
				Total Asbestos	0.002	0.003	
				tremolite (TR)	ND	ND	
43240	Shovel – Perimeter 3 PM	7/24/2007	Trip #2 Day 1 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	0.002	
				Total Amphibole	ND	0.002	
				Total Asbestos	ND	0.002	
				tremolite (TR)	ND	ND	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & 2 samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 13 (continued)
Asbestos in Air Sampling Results
Shoveling - Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
43269	Shovel/Rake – Perimeter DW#2 AM	7/26/2007	Trip #2 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.001	0.003	
				Total Amphibole	0.001	0.003	
				Total Asbestos	0.001	0.003	
				tremolite (TR)	ND	ND	
43270	Shovel/Rake – Perimeter DW #2 AM	7/26/2007	Trip #2 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.004	0.007	
				Total Amphibole	0.004	0.007	
				Total Asbestos	0.004	0.007	
				tremolite (TR)	ND	ND	
43271	Shovel/Rake – Perimeter DW # 2 Dup AM	7/26/2007	Trip #2 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.001	0.008	
				Total Amphibole	0.001	0.008	
				Total Asbestos	0.001	0.008	
				Tremolite (TR)	ND	ND	
43272	Shovel/Rake – Perimeter UW AM	7/26/2007	Trip #2 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.001	0.002	
				Total Amphibole	0.001	0.002	
				Total Asbestos	0.001	0.002	
				tremolite (TR)	ND	ND	
43273	Shovel – AM High	7/26/2007	Trip #2 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.025	0.054	
				Total Amphibole	0.025	0.054	
				Total Asbestos	0.025	0.054	
				tremolite (TR)	ND	ND	
43274	Shovel –AM High Dup	7/26/2007	Trip #2 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.017	0.034	
				Total Amphibole	0.017	0.034	
				Total Asbestos	0.017	0.034	
				tremolite (TR)	ND	ND	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & 2 samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 14
Asbestos in Air Sampling Results
Sieving – Upper Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0014	Sieve– Perimeter 1 PM	3/27/2007	Trip #1 Day 1 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.003	0.003	
				Total Amphibole	0.003	0.003	
				Total Asbestos	0.003	0.003	
				tremolite (TR)	ND	ND	
0-253-0015	Sieve – Perimeter 2 PM	3/27/2007	Trip #1 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.005	0.010	
				Total Amphibole	0.005	0.010	
				Total Asbestos	0.005	0.010	
0-253-0016	Sieve – Perimeter 3 PM	3/27/2007	Trip #1 Day 1 AM	tremolite (TR)	ND	ND	0.001
				actinolite (AC)	ND	ND	
				anthophyllite (AN)	0.001	0.001	
				Total Amphibole	0.001	0.001	
0-253-0021	Sieve – PM High	3/27/2007	Trip #1 Day 1 PM	Total Asbestos	0.001	0.001	0.001
				Tremolite (TR)	ND	ND	
				actinolite (AC)	ND	0.001	
				anthophyllite (AN)	0.022	0.032	
0-253-0077	Sieve – Perimeter 1 PM	3/27/2007	Trip #1 Day 1 PM	Total Amphibole	0.022	0.032	0.001
				Total Asbestos	0.022	0.032	
				tremolite (TR)	ND	0.001	
				actinolite (AC)	ND	ND	
0-253-0077	Sieve – Perimeter 1 PM	3/27/2007	Trip #1 Day 1 PM	anthophyllite (AN)	ND	ND	0.001
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & 2 samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 14 (continued)
Asbestos in Air Sampling Results
Sieving – Upper Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0078	Sieve – Perimeter 2 PM	3/29/2007	Trip #1 Day 3 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
0-253-0079	Sieve – Perimeter 3 PM	3/29/2007	Trip #1 Day 3 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.001	0.005	
				Total Amphibole	0.001	0.005	
				Total Asbestos	0.001	0.005	
0-253-0080	Sieve – Perimeter 1 PM Dup	3/29/2007	Trip #1 Day 3 PM	tremolite (TR)	ND	ND	0.001
				actinolite (AC)	ND	ND	
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
0-253-0085	Sieve – Perimeter 1 PM Dup	3/29/2007	Trip #1 Day 3 PM	tremolite (TR)	ND	ND	0.001
				actinolite (AC)	ND	ND	
				anthophyllite (AN)	0.005	0.016	
				Total Amphibole	0.005	0.016	
				Total Asbestos	0.005	0.016	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & 2 samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 15
Asbestos in Air Sampling Results
Sieving - Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0043	Sieve – PM High	3/28/2007	Trip #1 Day 2 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.035	0.042	
				Total Amphibole	0.035	0.042	
				Total Asbestos	0.035	0.042	
				tremolite (TR)	ND	ND	
0-253-0044	Sieve – PM High dup	3/28/2007	Trip #1 Day 2 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.039	0.057	
				Total Amphibole	0.039	0.057	
				Total Asbestos	0.039	0.057	
				tremolite (TR)	ND	ND	
43256	Sieve – AM High	7/25/2007	Trip #2 Day 2 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.070	0.130	
				Total Amphibole	0.070	0.130	
				Total Asbestos	0.070	0.130	
				tremolite (TR)	ND	ND	
43263	Sieve – PM High	7/25/2007	Trip #2 Day 2 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.140	0.210	
				Total Amphibole	0.140	0.210	
				Total Asbestos	0.140	0.210	
				tremolite (TR)	ND	ND	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & 2 samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 16
Asbestos in Air Sampling Results
Chiseling - Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0017	Chisel – Perimeter 1 PM	3/27/2007	Trip #1 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.005	0.005	
				Total Amphibole	0.005	0.005	
				Total Asbestos	0.005	0.005	
				tremolite (TR)	ND	ND	
0-253-0018	Chisel – Perimeter 2 PM	3/27/2007	Trip #1 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.008	0.019	
				Total Amphibole	0.008	0.019	
				Total Asbestos	0.008	0.019	
				tremolite (TR)	ND	ND	
0-253-0019	Chisel – Perimeter 3 PM	3/27/2007	Trip #1 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.082	0.220	
				Total Amphibole	0.082	0.220	
				Total Asbestos	0.082	0.220	
				Tremolite (TR)	ND	ND	
0-253-0022	Chisel – PM Low	3/27/2007	Trip #1 Day 1 PM	actinolite (AC)	ND	ND	0.045
				anthophyllite (AN)	2.00	5.10	
				Total Amphibole	2.10	5.40	
				Total Asbestos	2.10	5.40	
				tremolite (TR)	0.045	0.316	
0-253-0039	Chisel/Sieve – Perimeter 1 PM	3/28/2007	Trip #1 Day 2 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.003	0.007	
				Total Amphibole	0.003	0.007	
				Total Asbestos	0.003	0.007	
				tremolite (TR)	ND	ND	
0-253-0040	Chisel/Sieve – Perimeter 2 PM	3/28/2007	Trip #1 Day 2 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.003	0.011	
				Total Amphibole	0.003	0.011	
				Total Asbestos	0.003	0.011	
				tremolite (TR)	ND	ND	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & 2 samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 16 (continued)
Asbestos in Air Sampling Results
Chiseling - Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0041	Chisel/Sieve – Perimeter 3 PM	3/28/2007	Trip #1 Day 2 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.001	0.002	
				Total Amphibole	0.001	0.002	
				Total Asbestos	0.001	0.002	
				tremolite (TR)	ND	ND	
0-253-0045	Chisel – PM Low	3/28/2007	Trip #1 Day 2 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.290	0.450	
				Total Amphibole	0.290	0.450	
				Total Asbestos	0.290	0.450	
				tremolite (TR)	ND	ND	
0-253-0073	Chisel – Perimeter 1 PM	3/29/2007	Trip #1 Day 3 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.001	0.001	
				Total Amphibole	0.001	0.001	
				Total Asbestos	0.001	0.001	
				Tremolite (TR)	ND	ND	
0-253-0075	Chisel – Perimeter 2 PM	3/29/2007	Trip #1 Day 3 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.003	0.006	
				Total Amphibole	0.003	0.006	
				Total Asbestos	0.003	0.006	
				tremolite (TR)	ND	ND	
0-253-0076	Chisel – Perimeter 1 PM Dup	3/29/2007	Trip #1 Day 3 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
0-253-0081	Chisel – PM Low	3/29/2007	Trip #1 Day 3 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.070	0.151	
				Total Amphibole	0.070	0.151	
				Total Asbestos	0.070	0.151	
				tremolite (TR)	ND	ND	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & 2 samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 16 (continued)
Asbestos in Air Sampling Results
Chiseling - Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

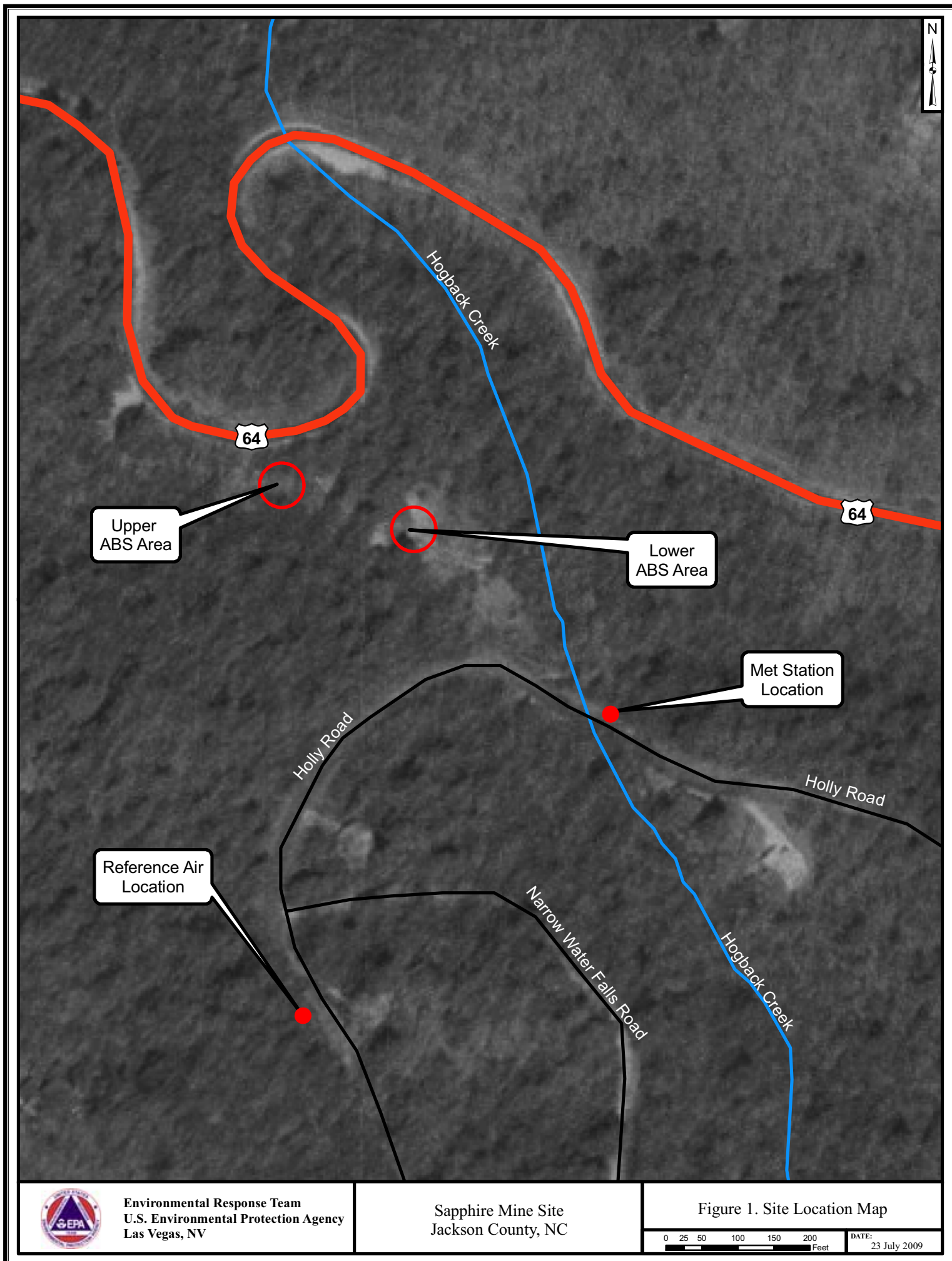
Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
0-253-0083	Chisel – PM High Dup	3/29/2007	Trip #1 Day 23AM	actinolite (AC)	ND	ND	0.210
				anthophyllite (AN)	4.00	25.0	
				Total Amphibole	4.00	25.0	
				Total Asbestos	4.00	25.0	
				tremolite (TR)	ND	0.210	
43236	Chisel – Low PM	7/24/2007	Trip #2 Day 1 AM	actinolite (AC)	ND	ND	0.004
				anthophyllite (AN)	0.280	0.990	
				Total Amphibole	0.280	0.990	
				Total Asbestos	0.280	0.990	
				tremolite (TR)	ND	0.004	
43241	Chisel – Perimeter 1 PM	7/24/2007	Trip #2 Day 1 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.024	0.060	
				Total Amphibole	0.024	0.060	
				Total Asbestos	0.024	0.060	
				Tremolite (TR)	ND	ND	
43242	Chisel – Perimeter 2 PM	7/24/2007	Trip #2 Day 1 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	0.001	
				Total Amphibole	ND	0.001	
				Total Asbestos	ND	0.001	
				tremolite (TR)	ND	ND	
43243	Chisel – Perimeter 3 PM	7/24/2007	Trip #2 Day 1 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
43249	Chisel – Perimeter 1 AM	7/25/2007	Trip #2 Day 2 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.003	0.006	
				Total Amphibole	0.003	0.006	
				Total Asbestos	0.003	0.006	
				tremolite (TR)	ND	ND	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & 2 samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method

TABLE 16 (continued)
Asbestos in Air Sampling Results
Chiseling - Lower Area
Sapphire Mine Asbestos Site
Jackson County, NC
July 2009

Sample #	Location	Sample Date	Event ID	Analyte	PCME	Total TEM EPASM	Analytical Sensitivity
43250	Chisel/Sieve – Perimeter 1 AM Dup	7/25/2007	Trip #2 Day 2 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.002	0.004	
				Total Amphibole	0.002	0.004	
				Total Asbestos	0.002	0.004	
				tremolite (TR)	ND	ND	
43251	Chisel/Sieve – Perimeter 3 AM	7/25/2007	Trip #1 Day 2 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.001	0.002	
				Total Amphibole	0.001	0.002	
				Total Asbestos	0.001	0.002	
				tremolite (TR)	ND	ND	
43252	Chisel/Sieve – Perimeter 2 AM	7/25/2007	Trip #2 Day 2 PM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	ND	ND	
				Total Amphibole	ND	ND	
				Total Asbestos	ND	ND	
				tremolite (TR)	ND	ND	
43253	Chisel – PM High	7/25/2007	Trip #2 Day 2 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.075	0.180	
				Total Amphibole	0.075	0.180	
				Total Asbestos	0.075	0.180	
				tremolite (TR)	ND	ND	
43254	Chisel – AM High Dup	7/25/2007	Trip #2 Day 2 AM	actinolite (AC)	ND	ND	0.001
				anthophyllite (AN)	0.058	0.150	
				Total Amphibole	0.058	0.150	
				Total Asbestos	0.058	0.150	
				tremolite (TR)	ND	ND	

Note: All results and analytical sensitivity in structures per cubic centimeter (s/cc)
All data imported directly from electronic data deliverable to preclude transcription errors
Results of ND indicate that the analyte was not detected at or below the analytical sensitivity as specified in the sensitivity column
Perimeter 1 & 2 samples are downwind, Perimeter 3 samples are upwind. PCME = Phased Contrast Microscopy Equivalent
TEM = Transmission Electron Microscopy
EPASM = Environmental Protection Agency Superfund Method





Appendix A
Final Data Validation Reports
Sapphire Mine
Verification/Validation Report
July 2009



DATE: February 14, 2008

TO: Howard Schmidt, REAC Task Leader

THROUGH: Deborah Killeen, REAC Quality Assurance Officer 

FROM: Antonio LoSurdo, REAC QA/QC Chemist 

SUBJECT: SAPPHIRE MINE - DATA VERIFICATION/VALIDATION
WORK ASSIGNMENT EAC00253 - VALIDATION REPORT

INTRODUCTION

A total of 30 samples (26 samples and four field blanks) were collected on March 27, 2007 on chain of custody (COC) records #0-253-04/04/07-0002 and #0-253-04/04/07-0003. Copies of the laboratory bench sheets were received to support the results reported on the laboratory's Certificates of Analysis. Twenty-two samples were analyzed using International Organization for Standardization (ISO) 10312:1995 and Annex E for PCM equivalents (PCME) asbestos fibers. Two activity-based low-volume samples (0-253-0010 and 0-253-0012) listed on COC #0-253-04/04/07-0003 were not analyzed because the corresponding high volume samples were analyzed. Samples 0-253-0022 and 0-253-0023 were not analyzed due to overloading.

An auto check between the NADES Excel spreadsheet and the Scribe project database were run using the CheckNades program that identified anomalies for sample numbers, sample volumes and missing information (Appendix A). The results provided in the electronic spreadsheets (Data Entry 1, Data Entry 2 and NADES Report) were compared with handwritten laboratory bench sheets. Information on the COC record and sample labels were used to identify discrepancies, which may impact the Certificate of Analysis Results Summary Table. Fifteen out of twenty-two samples showed the presence of one or more mineral structures and/or asbestos. All samples analyzed were verified/validated.

RESULTS

Since this project was not contracted by the Response Engineering and Analytical Contract (REAC), the laboratory could not be contacted with questions. The total number of asbestos structures on the laboratory's Certificates of Analysis was reported from the total number of EPASM structures from the 19,000x magnification. Likewise, the total number of PCME structures was reported from the total EPASM structures from the 10,000x magnification. Any discrepancies identified during the verification/validation process that impacted the total number of structures detected, analytical sensitivity, reported concentration, number of grid openings or the reported density on the laboratory's Certificates of Analysis are documented in Appendix B.

The following items were identified during the verification/validation process:

1. There were no sample volume or sample number inconsistencies found between the NADES Excel spreadsheet and the SCRIBE project database.
2. All samples were checked for error codes reported on the Data Entry 2 tab. Table 1.1 lists the samples with the associated error codes.
3. The total number of structures detected for samples 0-253-0017, 0-253-0018 and 0-253-0019 did not agree with the handwritten laboratory bench sheets. Corrected results are summarized in Table 1.2 and corrected bench sheets are presented in Appendix C.
4. The PCME result for sample 0-253-0021 was calculated using a number of grid openings, which did not agree with the handwritten bench sheet. Corrected results are summarized in Table 1.2 and corrected bench sheets are presented in Appendix C.
5. Sensitivity limits were verified for 100% of the analytical data. The samples met the 0.0001 structures per cubic centimeter (S/cc) for the background samples and the 0.001 S/cc for the activity-based samples and the associated perimeter samples.
6. Four field blanks were collected on the two chains of custody records cited above. No samples were designated as lot blanks or laboratory batch blanks. Results for the field blanks were acceptable.
7. The following equipment performance checks were not provided and could not be verified: TEM calibrations, camera constant calibrations, magnification calibrations @10,000x and 20,000x, 0.5- and 5-um on-screen calibrations and spot size measurements.
8. Results of PE samples, replicate, duplicate and verified analyses were not included in the data package submitted by the laboratory.
9. Additional inconsistencies included: Filter pore size was listed as 0.45 microns (μm) on the Certificates of Analysis vs. 0.800 μm listed on the Data Entry 1 spread sheet for all samples; the Site/Project identifier code on the Data Entry 1 spreadsheets was listed as 0-235 vs. 0-253, the correct project code, and COC numbers on the Certificates of Analysis were 0-235-04/04/07-0002 and -0003 instead of 0-253-04/04/07-0002 and -0003.

Cc: Central Files WA #0-253
Dennis Miller, REAC Program Manager
Joseph Soroka, DV & RW Group Leader
Electronic File: L: /Archive/REAC4/0253/D/VR/0253-DVRR1-021408

Table 1.1 Summary of Error Results for Asbestos in NADES
WA # 0-253 Sapphire Superfund Site

Magnification:	10,000 X		19,000 X	
	Data Entry 2 Error Code	Number Out	Data Entry 2 Error Code	Number Out
0-253-0015	D Value error	1 grid 1 grid	None	0
0-253-0016	D # Value	2 grids 2 grids	None	0
0-253-0017	D DE E #Values	5 grids 1 grid 2 grids 9 grids	None	0
0-253-0018	D DE #Values	2 grids 1 grid 6 grids	None	0
0-253-0019	D DE E #Values	14 grids 1 grid 2 grids 3 grids	E	3 grids
0-253-0021	D DE #Values	3 grids 1 grid 4 grids	None	0

NOTE:

The NADES report and Data entry 1 have no reported errors at both magnifications 10,000x and 19,000x for samples 0-253-0001 through -0009, 0-253-0011, 0-253-0013 through -0014, 0-253-0021 and 0-253-0089 through -0092.

Table 1.2 Summary of Recalculated Results for Asbestos in Air
WA # 0-253 Sapphire (1) Superfund Site

Activity	PCME Analysis	
	Original Result	Recalculated Result
Sample Number:	0-253-0017	0-253-0017
Volume (L)	2110	2110
Total Number of Structures	17	14
Analytical Sensitivity (s/cc)	0.00097	0.00097
Limit of Detection (s/mm2)	5.3	5.3
Reported concentration (s/cc)	0.01641	0.01358
Reported Density (s/mm2)	89.9	74.4
Sample Number:	0-253-0018	0-253-0018
Volume (L)	2200	2200
Total Number of Structures	11	13
Analytical Sensitivity (s/cc)	0.00100	0.00100
Limit of Detection (s/mm2)	5.7	5.7
Reported concentration (s/cc)	0.01097	0.012961
Reported Density (s/mm2)	62.7	74.1
Sample Number:	0-253-0019	0-253-0019
Volume (L)	2200	2200
Total Number of Structures	127	128
Analytical Sensitivity (s/cc)	0.00100	0.00100
Limit of Detection (s/mm2)	5.7	5.7
Reported concentration (s/cc)	0.12664	0.12762
Reported Density (s/mm2)	723.5	729.6
Sample Number:	0-253-0021	0-253-0021
Volume (L)	2200	2200
Number of Grid Openings	12	13
Analytical Sensitivity (s/cc)	0.00108	0.00100
Limit of Detection (s/mm2)	6.2	5.7
Reported concentration (s/cc)	0.03565	0.03300
Reported Density (s/mm2)	203.7	188.6

APPENDIX A
CheckNades Text File
Sapphire Mine
Verification/Validation Report
February 2008

0-235_Batta_0-253-0021_08-15-07_RTP-3563-PCME_TEM-EPASM_D_C1 (AGAIN).xls is correct

0-235_Batta_0-253-0091_08-14-07_RTP-3563-ISO_TEM-EPASM_D_C1 (AGAIN).xls is correct

0-235_Batta_0-253-0091_08-16-07_RTP-3563-PCME_TEM-EPASM_D_C1 (AGAIN).xls is correct

0-253_Batta_0-253-0001_08-14-07_RTP-3562-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0001_08-14-07_RTP-3562-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0002_08-17-07_RTP-3562-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0002_08-17-07_RTP-3562-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0003_08-20-07_RTP-3562-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0003_08-20-07_RTP-3562-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0004_08-19-07_RTP-3562-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0004_08-19-07_RTP-3562-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0005_08-20-07_RTP-3562-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0005_08-20-07_RTP-3562-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0006_08-20-07_RTP-3562-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0006_08-20-07_RTP-3562-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0007_08-20-07_RTP-3562-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0007_08-20-07_RTP-3562-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0008_08-21-07_RTP-3562-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0008_08-21-07_RTP-3562-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0009_08-21-07_RTP-3562-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0009_08-21-07_RTP-3562-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0011_08-22-07_RTP-3562-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0011_08-22-07_RTP-3562-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0013_08-23-07_RTP-3562-ISO_TEM-EPASM_D_C1.xls is correct

0-253_Batta_0-253-0013_08-23-07_RTP-3562-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0014_07-16-07_RTP-3563-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0014_07-16-07_RTP-3563-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0015_07-18-07_RTP-3563-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0015_07-18-07_RTP-3563-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0016_07-21-07_RTP-3563-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0016_07-21-07_RTP-3563-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0017_07-23-07_RTP-3563-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0017_07-23-07_RTP-3563-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0018_07-24-07_RTP-3563-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0018_07-24-07_RTP-3563-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0019_07-24-07_RTP-3563-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0019_08-13-07_RTP-3563-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0021_08-12-07_RTP-3563-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0021_08-15-07_RTP-3563-PCME_TEM-EPASM_D_C1.xls is correct

0-253_Batta_0-253-0022_07-21-07_RTP-3563-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0022_07-21-07_RTP-3563-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0022_09-20-07_RTP-3563-ISO_TEM-EPASM_IA.xls is NOT correct

	Scribe Data	Lab Data
Volume:	681	2200

0-253_Batta_0-253-0022_09-20-07_RTP-3563-ISO_TEM-EPASM_IA_C1.xls is correct

0-253_Batta_0-253-0022_09-20-07_RTP-3563-PCME_TEM-EPASM_IA.xls is NOT correct

	Scribe Data	Lab Data
Volume:	681	2200

0-253_Batta_0-253-0022_09-20-07_RTP-3563-PCME_TEM-EPASM_IA_C1.xls is correct

0-253_Batta_0-253-0023_07-21-07_RTP-3563-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0023_07-21-07_RTP-3563-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0023_09-20-07_RTP-3563-ISO_TEM-EPASM_IA.xls is correct

0-253_Batta_0-253-0023_09-20-07_RTP-3563-PCME_TEM-EPASM_IA.xls is correct

0-253_Batta_0-253-0024_08-29-07_RTP-3564-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0024_08-29-07_RTP-3564-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0025_08-29-07_RTP-3564-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0025_08-29-07_RTP-3564-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0026_08-30-07_RTP-3564-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0026_08-30-07_RTP-3564-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0027_08-30-07_RTP-3564-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0027_08-30-07_RTP-3564-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0028_08-30-07_RTP-3564-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0028_08-30-07_RTP-3564-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0029_08-30-07_RTP-3564-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0029_08-30-07_RTP-3564-PCME_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0030_08-30-07_RTP-3564-ISO_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0030_08-30-07_RTP-3564-PCME_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0031_09-23-07_RTP-3564-ISO_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0031_09-23-07_RTP-3564-PCME_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0032_09-23-07_RTP-3564-ISO_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0032_09-23-07_RTP-3564-PCME_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0033_09-23-07_RTP-3564-ISO_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0033_09-23-07_RTP-3564-PCME_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0034_09-24-07_RTP-3564-ISO_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0034_09-24-07_RTP-3564-PCME_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0036_09-24-07_RTP-3564-ISO_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0036_09-24-07_RTP-3564-PCME_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0038_09-24-07_RTP-3564-ISO_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0038_09-24-07_RTP-3564-PCME_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0039_09-25-07_RTP-3565-ISO_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0039_09-25-07_RTP-3565-PCME_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0040_09-25-07_RTP-3565-ISO_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0040_09-25-07_RTP-3565-PCME_TEM-EPASM_D.xls is correct
 0-253_Batta_0-253-0041_09-25-07_RTP-3565-ISO_TEM-EPASM_D.xls is NOT correct
 Scribe Data Lab Data
 Volume: 2200 2220
 0-253_Batta_0-253-0041_09-25-07_RTP-3565-PCME_TEM-EPASM_D.xls is NOT correct
 Scribe Data Lab Data
 Volume: 2200 2220
 0-253_Batta_0-253-0043_09-25-07_RTP-3565-ISO_TEM-EPASM_D.xls is NOT correct
 Scribe Data Lab Data
 Volume: 2200 2220
 0-253_Batta_0-253-0043_09-25-07_RTP-3565-PCME_TEM-EPASM_D.xls is NOT correct
 Scribe Data Lab Data
 Volume: 2200 2220
 0-253_Batta_0-253-0044_09-26-07_RTP-3565-ISO_TEM-EPASM_D.xls is NOT correct
 Scribe Data Lab Data
 Volume: 2200 2220
 0-253_Batta_0-253-0044_09-26-07_RTP-3565-PCME_TEM-EPASM_D.xls is NOT correct
 Scribe Data Lab Data
 Volume: 2200 2220

0-253_Batta_0-253-0045_10-04-07_RTP-3565-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0045_10-05-07_RTP-3565-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0046_09-27-07_RTP-3565-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0046_09-27-07_RTP-3565-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0047_09-27-07_RTP-3565-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0047_09-27-07_RTP-3565-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0048_09-27-07_RTP-3565-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0048_09-27-07_RTP-3565-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0057_09-30-07_RTP-3566-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0057_09-30-07_RTP-3566-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0058_09-30-07_RTP-3566-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0058_10-01-07_RTP-3566-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0059_10-01-07_RTP-3566-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0059_10-01-07_RTP-3566-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0060_10-02-07_RTP-3566-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0060_10-02-07_RTP-3566-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0061_10-02-07_RTP-3566-ISO_TEM-EPASM_D.xls is NOT correct

	Scribe Data	Lab Data
Volume:	2300	2200

0-253_Batta_0-253-0061_10-02-07_RTP-3566-PCME_TEM-EPASM_D.xls is NOT correct

	Scribe Data	Lab Data
Volume:	2300	2200

0-253_Batta_0-253-0062_10-02-07_RTP-3566-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0062_10-02-07_RTP-3566-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0063_10-02-07_RTP-3566-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0063_10-02-07_RTP-3566-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0064_10-02-07_RTP-3566-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0064_10-02-07_RTP-3566-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0065_10-03-07_RTP-3566-ISO_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0065_10-03-07_RTP-3566-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0066_10-03-07_RTP-3566-ISO_TEM-EPASM_D.xls is NOT correct

	Scribe Data	Lab Data
Volume:	2210	2100

0-253_Batta_0-253-0066_10-03-07_RTP-3566-PCME_TEM-EPASM_D.xls is NOT correct

	Scribe Data	Lab Data
Volume:	2210	2100

0-253_Batta_0-253-0067_10-03-07_RTP-3566-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0067_10-03-07_RTP-3566-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0069_10-03-07_RTP-3566-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0069_10-03-07_RTP-3566-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0070_10-03-07_RTP-3566-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0070_10-03-07_RTP-3566-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0073_10-01-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0073_10-01-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0075_10-02-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0075_10-02-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0076_10-02-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0076_10-02-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0077_10-03-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0077_10-03-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0078_10-03-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0078_10-03-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0079_10-03-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0079_10-03-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0080_10-03-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0080_10-03-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0081_10-06-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0081_10-06-07_RTP-3567-ISO_TEM-EPASM_IA.xls is correct
0-253_Batta_0-253-0081_10-06-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0081_10-06-07_RTP-3567-PCME_TEM-EPASM_IA.xls is correct
0-253_Batta_0-253-0082_10-01-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0082_10-01-07_RTP-3567-ISO_TEM-EPASM_IA.xls is correct
0-253_Batta_0-253-0082_10-01-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0082_10-01-07_RTP-3567-PCME_TEM-EPASM_IA.xls is correct
0-253_Batta_0-253-0083_10-07-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0083_10-07-07_RTP-3567-ISO_TEM-EPASM_IA.xls is correct
0-253_Batta_0-253-0083_10-07-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct

0-253_Batta_0-253-0083_10-07-07_RTP-3567-PCME_TEM-EPASM_IA.xls is correct
0-253_Batta_0-253-0085_10-06-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0085_10-06-07_RTP-3567-ISO_TEM-EPASM_IA.xls is correct
0-253_Batta_0-253-0085_10-06-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0085_10-06-07_RTP-3567-PCME_TEM-EPASM_IA.xls is correct
0-253_Batta_0-253-0086_10-03-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0086_10-03-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0087_10-03-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0087_10-03-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0088_10-03-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0088_10-03-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0089_08-14-07_RTP-3563-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0089_08-16-07_RTP-3563-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0090_08-14-07_RTP-3563-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0090_08-16-07_RTP-3563-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0091_08-14-07_RTP-3563-ISO_TEM-EPASM_D_C1.xls is correct
0-253_Batta_0-253-0091_08-16-07_RTP-3563-PCME_TEM-EPASM_D_C1.xls is correct
0-253_Batta_0-253-0092_08-16-07_RTP-3563-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0092_08-16-07_RTP-3563-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0097_10-03-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0097_10-03-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0098_10-03-07_RTP-3567-ISO_TEM-EPASM_D.xls is correct
0-253_Batta_0-253-0098_10-03-07_RTP-3567-PCME_TEM-EPASM_D.xls is correct

CheckNadesLabs.exe is NOT NADES file

ImportData.csv is NOT NADES file

RTP 3565 Hardcopy Report.pdf is NOT NADES file

RTP-3562 Hardcopy Report.pdf is NOT NADES file

RTP-3563 Hardcopy Report.pdf is NOT NADES file

RTP-3564-Hardcopy Report.pdf is NOT NADES file

RTP-3566 Hardcopy Report.pdf is NOT NADES file

RTP-3567 Hardcopy Report.pdf is NOT NADES file

APPENDIX B
Corrected Laboratory Certificates of Analysis
Sapphire Valley
Verification/Validation Report
February 2008

Dedicated to a Cleaner
Environment Since 1982



BATTA

BATTA LABORATORIES, INC.

A Certified MBE Company

Delaware Industrial Park - 6 Garfield Way - Newark, DE 19713-5817

(302) 737-3378 - Fax (302) 737-5784

Web: www.battaenv.com E-mail: battaenv@battaenv.com

E.P.A. LAB ID# DE004



A.I.H.A./NLLAP

#100448

NVLAP

#101032

0-253-04/04/07-0002

CERTIFICATE OF ANALYSIS

COC#: 0-253-04/04/07-0002

Page 1 of 3

Batch #: RTP-3562-ISO

Test Method: ISO 10312:1995(E)

Prep Method: ISO 10312:1995(E) - Direct Transfer

Report Date: 9/19/2007

Sampling Data

BLI Project #: L443805

Project Name: 580605 - CDM Federal Programs

Date Sampled: 3/27/2007

Sampled by: client

Sampling Location: not given

Date Received: 7/5/2007

Instruments: Scope Model: JEM 100CX II Magnification: 19,000 Operational Condition: Normal
Analyzer: Kevex Det. Area: 10 mm² Det. Window: 0.008 mm

Analytical Data

Effective Area (mm²): 385

Media: MCE

Pore Size (µm): 0.45

Grid Area (mm²): 0.009 ✓

Date Prepped: 7/13/07 Prepped By: A. Steiner

Date Analyzed: 8/14/2007

Analyzed By: J. XU

Lab Data				Analytical Data					Results	
Lab Sample Number	EPA Sample Number	Analytical Counting Rule Identifier	Air Volume (L)	# of Grid Openings Area Analyzed (mm ²)	Total Number of Structures Detected	Asbestos Mineral Type Detected	Analytical Sensitivity (s/cc)	Limit of Detection (s/mm ²)	Reported Concentration (s/cc)	Reported Density (s/mm ²)
558069 /	0-253-0001 /	RTP-3562-ISO /	5400.00	80 / 0.7200	0 /	None Detected	0.00010	1.4 /	< 0.00010	< 1.4
558069 /	0-253-0001 /	RTP-3562-PCME	5400.00	80 / 0.7200	0 /	None Detected	0.00010	1.4	< 0.00010	< 1.4
558070 /	0-253-0002 /	RTP-3562-ISO /	5400.00	80 / 0.7200	0 /	None Detected	0.00010	1.4	< 0.00010	< 1.4
558070 /	0-253-0002 /	RTP-3562-PCME	5400.00	80 / 0.7200	0 /	None Detected	0.00010	1.4	< 0.00010	< 1.4
558071 /	0-253-0003 /	RTP-3562-ISO /	5400.00	80 / 0.7200	0 /	None Detected	0.00010	1.4	< 0.00010	< 1.4
558071 /	0-253-0003 /	RTP-3562-PCME	5400.00	80 / 0.7200	0 /	None Detected	0.00010	1.4	0.00010	< 1.4
558072 /	0-253-0004 /	RTP-3562-ISO /	2200.00	16 / 0.2160	0 /	None Detected	0.00081	4.8	< 0.00081	< 4.8
558072 /	0-253-0004 /	RTP-3562-PCME	2200.00	13 / 0.1755	1 /	Anthophyllite	0.00100	5.7 /	0.00100	5.7
558073 /	0-253-0005 /	RTP-3562-ISO /	2200.00	13 / 0.1755	4 /	Anthophyllite	0.00100	5.7	0.00399	22.8
558073 /	0-253-0005 /	RTP-3562-PCME	2200.00	13 / 0.1755	1 /	Anthophyllite	0.00100	5.7	0.00100	5.7

For one or more samples within this batch, it was not possible to meet the Analytical Sensitivity (0.0001 s/cc) within the count rules of this method.

Analyst: J. XU

Reviewed By: *[Signature]* 09/19/07

Volumes provided by client. Batta Laboratories does not accept liability for results reported in s/cc. This report pertains only to the items tested and does not constitute endorsement by NVLAP or any other U.S. government agency.

Dedicated to a Cleaner
Environment Since 1982



BATTA

BATTA LABORATORIES, INC.

A Certified MBE Company

Delaware Industrial Park - 8 Garfield Way - Newark, DE 19713-5817

(302) 737-3378 - Fax (302) 737-5784

Web: www.battaenv.com E-mail: battaenv@battaenv.com

E.P.A. LAB ID# DE004



A.I.H.A./NLLAP

#100448



NVLAP

#101032

CERTIFICATE OF ANALYSIS

COC#: 0-253-04/04/07-0002

Page 2 of 3

Batch #: RTP-3562-ISO

Test Method: ISO 10312:1995(E)

Prep Method: ISO 10312:1995(E) - Direct Transfer

Report Date: 9/19/2007

Sampling Data

BLI Project #: L443805

Project Name: 560605 - CDM Federal Programs

Date Sampled: 3/27/2007

Sampled by: client

Sampling Location: not given

Date Received: 7/5/2007

Instruments:

Scope Model: JEM 100CX II

Magnification: 19,000

Operational Condition: Normal

Analyzer: Kevex

Det. Area: 10 mm²

Det. Window: 0.008 mm

Analytical Data

Effective Area (mm²): 385

Media: MCE

Pore Size (µm): 0.45

Grid Area (mm²): 0.0135

Date Prepped: 7/13/07

Prepped By: A. Steiner

Date Analyzed: 8/20/2007

Analyzed By: J. XU

Lab Data				Analytical Data					Results	
Lab Sample Number	EPA Sample Number	Analytical Counting Rule Identifier	Air Volume (L)	# of Grid Openings Area Analyzed (mm ²)	Total Number of Structures Detected	Asbestos Mineral Type Detected	Analytical Sensitivity (a/cc)	Limit of Detection (s/mm ²)	Reported Concentration (a/cc)	Reported Density (s/mm ²)
558074 /	0-253-0008 /	RTP-3562-ISO /	2310.00	14 0.1890	1	Anthophyllite /	0.00088 /	5.3 /	0.00088 /	5.3
558074 /	0-253-0008 /	RTP-3562-PCME /	2310.00	13 0.1755	0	None Detected /	0.00095 /	5.7 / <	0.00095 / <	5.7
558075 /	0-253-0007 /	RTP-3562-ISO /	2110.00	14 0.1890	1	Anthophyllite /	0.00097 /	5.3 /	0.00097 /	5.3
558075 /	0-253-0007 /	RTP-3562-PCME /	2110.00	14 0.1890	0	None Detected /	0.00097	5.3 / <	0.00097 / <	5.3
558076 /	0-253-0008 /	RTP-3562-ISO /	2310.00	13 0.1755	2	Anthophyllite /	0.00095	5.7 /	0.00190 /	11.4
558076 /	0-253-0008 /	RTP-3562-PCME /	2310.00	13 0.1755	2	Anthophyllite /	0.00095 /	5.7 /	0.00190 /	11.4
558077 /	0-253-0009 /	RTP-3562-ISO /	2310.00	13 0.1755	0	None Detected /	0.00095	5.7 / <	0.00095 / <	5.7
558077 /	0-253-0009 /	RTP-3562-PCME /	2310.00	13 0.1755	1	Anthophyllite /	0.00095	5.7 /	0.00095 /	5.7
558079 /	0-253-0011 /	RTP-3562-ISO /	2200.00	13 0.1755	12	Anthophyllite /	0.00100 /	5.7 /	0.01197 /	68.4
558079 /	0-253-0011 /	RTP-3562-PCME /	2200.00	13 0.1755	5	Anthophyllite /	0.00100 /	5.7 /	0.00499 /	28.5

Analyst: J. XU

Reviewed By: [Signature] 09/19/07

Volumes provided by client. Batta Laboratories does not accept liability for results reported in s/cc. This report pertains only to the items tested and does not constitute endorsement by NVLAP or any other U.S. government agency.

Dedicated to a Cleaner
Environment Since 1982



BATTA

BATTA LABORATORIES, INC.

A Certified MBE Company

Delaware Industrial Park - 6 Garfield Way - Newark, DE 19713-5817

(302) 737-3378 - Fax (302) 737-5764

Web: www.battaenv.com E-mail: battaenv@battaenv.com

E.P.A. LAB ID# DE004



A.I.H.A./NLLAP

#100448

NVLAP

NVLAP

#101032

CERTIFICATE OF ANALYSIS

COC#: 0-225-04/04/07-0002

Page 3 of 3

Batch #: RTP-3562-ISO

Test Method: ISO 10312:1995(E)

Prep Method: ISO 10312:1995(E) - Direct Transfer

Report Date: 8/19/2007

Sampling Data

BLI Project #: L443805

Project Name: 560605 - CDM Federal Programs

Date Sampled: 3/27/2007

Sampled by: client

Sampling Location: not given

Date Received: 7/5/2007

Instruments: Scope Model: JEM 100CX II Magnification: 19,000 Operational Condition: Normal
Analyzer: Kevex Det. Area: 10 mm² Det. Window: 0.008 mm

Analytical Data

Effective Area (mm²): 385

Media: MCE

Pore Size (μm): 0.45

Grid Area (mm²): 0.0135

Date Prepped: 7/13/07

Prepped By: A. Steiner

Date Analyzed: 8/23/2007

Analyzed By: J. XU

Lab Data				Analytical Data					Results	
Lab Sample Number	EPA Sample Number	Analytical Counting Rule Identifier	Air Volume (L)	# of Grid Openings Area Analyzed (mm ²)	Total Number of Structures Detected	Asbestos Mineral Type Detected	Analytical Sensitivity (s/cc)	Limit of Detection (s/mm ²)	Reported Concentration (s/cc)	Reported Density (s/mm ²)
558081	0-253-0013	RTP-3562-ISO	2200.00	13 0.1755	17	Anthophyllite	0.00100	5.7	0.01695	98.9
558081	0-253-0013	RTP-3562-PCME	2200.00	13 0.1755	14	Anthophyllite	0.00100	5.7	0.01398	79.8

Analyst: J. XU

Reviewed By: [Signature] 08/19/07

Volumes provided by client. Batta Laboratories does not accept liability for results reported in s/cc. This report pertains only to the items tested and does not constitute endorsement by NVLAP or any other U.S. government agency.

Dedicated to a Cleaner
Environment Since 1982



BATTA

BATTA LABORATORIES, INC.

A Certified MBE Company

Delaware Industrial Park - 6 Garfield Way - Newark, DE 19713-5817

(302) 737-3378 - Fax (302) 737-5784

Web: www.battaenv.com E-mail: battaenv@battaenv.com

E.P.A. LAB ID# DE004



A.L.H.A./NLLAP

#100448

NVLAP

NVLAP

#101032

CERTIFICATE OF ANALYSIS

COC#: 0-253-04/04/07-0003

Page 1 of 3

Batch #: RTP-3563-ISO

Test Method: ISO 10312:1995(E)

Prep Method: ISO 10312:1995(E) - Direct Transfer

Report Date: 9/19/2007

Sampling Data

BLI Project #: L443805

Project Name: 560605 - CDM Federal Programs

Date Sampled: 3/27/2007

Sampled by: client

Sampling Location: not given

Date Received: 7/5/2007

Instruments Scope Model: JEM 100CX II Magnification: 19,000 Operational Condition: Normal
Analyzer: Kevex Det. Area: 10 mm Det. Window: 0.008 mm

Analytical Data

Effective Area (mm²): 385

Media: MCE

Pore Size (µm): 0.45

Grid Area (mm²): 0.0135 ✓

Date Prepped: 7/16/07

Prepped By: A. Steiner

Date Analyzed: 7/16/2007

Analyzed By: B. Li

Lab Data				Analytical Data					Results	
Lab Sample Number	EPA Sample Number	Analytical Counting Rule Identifier	Air Volume (L)	# of Grid Openings Area Analyzed (mm ²)	Total Number of Structures Detected	Asbestos Mineral Type Detected	Analytical Sensitivity (s/cc)	Limit of Detection (s/mm ²)	Reported Concentration (s/cc)	Reported Density (s/mm ²)
558082 ✓	0-253-0014 ✓	RTP-3563-ISO ✓	2200.00	13 0.1755	3 ✓	Anthophyllite ✓	0.00100 ✓	5.7 ✓	0.00299 ✓	17.1 ✓
558082 ✓	0-253-0014 ✓	RTP-3563-PCME ✓	2200.00	13 0.1755	3 ✓	Anthophyllite ✓	0.00100 ✓	5.7 ✓	0.00299 ✓	17.1 ✓
558083 ✓	0-253-0015 ✓	RTP-3563-ISO ✓	2200.00	13 0.1755	10 ✓	Anthophyllite ✓	0.00100 ✓	5.7 ✓	0.00997 ✓	57.0 ✓
558083 ✓	0-253-0015 ✓	RTP-3563-PCME ✓	2200.00	13 0.1755	8 ✓	Anthophyllite ✓	0.00100 ✓	5.7 ✓	0.00798 ✓	45.6 ✓
558084 ✓	0-253-0016 ✓	RTP-3563-ISO ✓	2200.00	13 0.1755	1 ✓	Anthophyllite ✓	0.00100 ✓	5.7 ✓	0.00100 ✓	5.7 ✓
558084 ✓	0-253-0016 ✓	RTP-3563-PCME ✓	2200.00	13 0.1755	6 ✓	Anthophyllite ✓	0.00100 ✓	5.7 ✓	0.00598 ✓	34.2 ✓
558085 ✓	0-253-0017 ✓	RTP-3563-ISO ✓	2110.00	14 0.1890	5 ✓	Anthophyllite ✓	0.00097 ✓	5.3 ✓	0.00483 ✓	26.5 ✓
558085 ✓	0-253-0017 ✓	RTP-3563-PCME ✓	2110.00	14 0.1890	14 ✓	Anthophyllite ✓	0.00097 ✓	5.3 ✓	0.01041 0.01358	52.3 74.4
558086 ✓	0-253-0018 ✓	RTP-3563-ISO ✓	2200.00	13 0.1755	19 ✓	Anthophyllite ✓	0.00100 ✓	5.7 ✓	0.01895 ✓	108.3 ✓
558086 ✓	0-253-0018 ✓	RTP-3563-PCME ✓	2200.00	13 0.1755	13 ✓	Anthophyllite ✓	0.00100 ✓	5.7 ✓	0.01097 0.01296	52.3 74.1

Analyst: B. Li

Reviewed By: K/S

09/19/07

Volumes provided by client. Batta Laboratories does not accept liability for results reported in s/cc. This report pertains only to the items tested and does not constitute endorsement by NVLAP or any other U.S. government agency.

Dedicated to a Cleaner
Environment Since 1982



BATTA

BATTA LABORATORIES, INC.

A Certified MBE Company

Delaware Industrial Park - 8 Garfield Way - Newark, DE 19713-5817

(302) 737-3378 - Fax (302) 737-5784

Web: www.battaenv.com E-mail: battaenv@battaenv.com

E.P.A. LAB ID# DE004



A.I.H.A./NVLAP

#100448

NVLAP

#101032

CERTIFICATE OF ANALYSIS

Page 3 of 3

COC#: 0-235-04/04/07-0003

Batch #: RTP-3563-ISO

Test Method: ISO 10312:1995(E)

Prep Method: ISO 10312:1995(E) - Direct Transfer

Report Date: 9/19/2007

Sampling Data

BLI Project #: L443805

Project Name: 560605 - CDM Federal Programs

Date Sampled: 3/27/2007

Sampled by: client

Sampling Location: not given

Date Received: 7/5/2007

Instruments: Scope Model: JEM 100CX II Magnification: 19,000 Operational Condition: Normal
Analyzer: Kevex Det. Area: 10 mm Det. Window: 0.008 mm

Analytical Data

Effective Area (mm²): 385

Media: MCE

Pore Size (µm): 0.45

Grid Area (mm²): 0.0135

Date Prepped: 7/16/07

Prepped By: A. Steiner

Date Analyzed: 8/16/2007

Analyzed By: J. Xu

Lab Data				Analytical Data					Results	
Lab Sample Number	EPA Sample Number	Analytical Counting Rule Identifier	Air Volume (L)	# of Grid Openings Area Analyzed (mm ²)	Total Number of Structures Detected	Asbestos Mineral Type Detected	Analytical Sensitivity (s/cc)	Limit of Detection (s/mm ²)	Reported Concentration (s/cc)	Reported Density (s/mm ²)
558094 /	0-253-0092 /	RTP-3563-ISO	0.00 /	10 0.1350	0	None Detected	n/a	7.4 /	n/a	< 7.4 /
558094 /	0-253-0092 /	RTP-3563-PCME	0.00 /	10 0.1350	0	None Detected	n/a	7.4 /	n/a	< 7.4 /

For one or more samples within this batch, it was not possible to meet the Analytical Sensitivity (0.001 s/cc) within the count rules of this method.

Analyst: J. Xu

Reviewed By: MS

09/19/07

Volumes provided by client. Batta Laboratories does not accept liability for results reported in s/cc. This report pertains only to the items tested and does not constitute endorsement by NVLAP or any other U.S. government agency.

Dedicated to a Cleaner
Environment Since 1982



BATTA

BATTA LABORATORIES, INC.

A Certified MBE Company

Delaware Industrial Park - 8 Garfield Way - Newark, DE 19713-5817

(302) 737-3376 - Fax (302) 737-5784

Web: www.battaenv.com E-mail: battaenv@battaenv.com

E.P.A. LAB ID# DE004



A.I.H.A./NLLAP

#100448



NVLAP

#101032

CERTIFICATE OF ANALYSIS

COC#: 0-235-04/04/07-0003

Page 2 of 3

Batch #: RTP-3563-ISO

Test Method: ISO 10312:1995(E)

Prep Method: ISO 10312:1995(E) - Direct Transfer

Report Date: 9/19/2007

Sampling Data

BLI Project #: L443805

Project Name: 560605 - CDM Federal Programs

Date Sampled: 3/27/2007

Sampled by: client

Sampling Location: not given

Date Received: 7/5/2007

Instruments: Scope Model: JEM 100CX II Magnification: 19,000 Operational Condition: Normal
Analyzer: Kevex Det. Area: 10 mm² Det. Window: 0.008 mm

Analytical Data

Effective Area (mm²): 385

Media: MCE

Pore Size (µm): 0.45

Grid Area (mm²): 0.0135

Date Prepped: 7/16/07

Prepped By: A. STEINEF

Date Analyzed: 7/24/2007

Analyzed By: B. Li

Lab Data				Analytical Data				Results		
Lab Sample Number	EPA Sample Number	Analytical Counting Rule Identifier	Air Volume (L)	# of Grid Openings Area Analyzed (mm ²)	Total Number of Structures Detected	Asbestos Mineral Type Detected	Analytical Sensitivity (s/cc)	Limit of Detection (s/mm ²)	Reported Concentration (s/cc)	Reported Density (s/mm ²)
558087 ✓	0-235-0019 ✓	RTP-3563-ISO	2200.00 ✓	<u>10</u> 0.1350	173	Anthophyllite Actinolite	0.00130	7.4 ✓	0.22426 ✓	1281.5 ✓
558087 ✓	0-235-0019 ✓	RTP-3563-PCME	2200.00 ✓	<u>13</u> 0.1755	173 128	Anthophyllite	0.00100	5.7 ✓	0.12004 0.12762	728.5 729.6
558088 ✓	0-253-0021 ✓	RTP-3563-ISO	2200.00 ✓	<u>13</u> 0.1755	32	Tremolite Anthophyllite Actinolite	0.00100	5.7 ✓	0.03191	182.3
558088 ✓	0-253-0021 ✓	RTP-3563-PCME	2200.00 ✓	<u>12</u> 13 0.1820	33 ✓	Anthophyllite	0.00100 0.00100	5.7 5.7	0.03365 0.03300	285.1 188.6
558091 ✓	0-253-0089 ✓	RTP-3563-ISO	0.00 ✓	<u>10</u> 0.1350	1 ✓	Anthophyllite	n/a	7.4 ✓	n/a	7.4
558091 ✓	0-253-0089 ✓	RTP-3563-PCME	0.00 ✓	<u>10</u> 0.1350	0 ✓	None Detected	n/a	7.4 ✓	n/a	< 7.4
558092 ✓	0-253-0090 ✓	RTP-3563-ISO	0.00 ✓	<u>10</u> 0.1350	0 ✓	None Detected	n/a	7.4 ✓	n/a	< 7.4
558092 ✓	0-253-0090 ✓	RTP-3563-PCME	0.00 ✓	<u>10</u> 0.1350	0 ✓	None Detected	n/a	7.4 ✓	n/a	< 7.4
558093 ✓	0-253-0091 ✓	RTP-3563-ISO	0.00 ✓	<u>10</u> 0.1350	0 ✓	None Detected	n/a	7.4 ✓	n/a	< 7.4
558093 ✓	0-253-0091 ✓	RTP-3563-PCME	0.00 ✓	<u>10</u> 0.1350	0 ✓	None Detected	n/a	7.4 ✓	n/a	< 7.4

For one or more samples within this batch, it was not possible to meet the Analytical Sensitivity (0.001 s/cc) within the count rules of this method.

Analyst: B. Li and J. Xu

Reviewed By: *AS*

09/19/07

Volumes provided by client. Batta Laboratories does not accept liability for results reported in s/cc. This report pertains only to the items tested and does not constitute endorsement by NVLAP or any other U.S. government agency.

APPENDIX C
Corrected Bench Sheets
Sapphire Mine
Verification/Validation Report
February 2008

National Asbestos Data Entry Spreadsheet (NADES) for Air & Dust Analysis by Superfund TEM
SAMPLE/ANALYSIS INFORMATION

version 8-DRAFT
 Page ____ of ____

Enter Site or Project Name Here:	
State/Federal Site or Project Identifier:	

RTP-EPA Project	
EP-C-04-032	

Site/Project Identifier Code:	0-235
	0-253

F-factor Input Parameters:

Laboratory name:	Batia
Instrument:	JEM-100 CX II
Voltage (kV):	100
Magnification:	19,000
Grid opening area (mm ²):	0.0135
Scale: 1L =	1,000
Scale: 1D =	1,000
Filter Size (mm):	385.000
Filter Pore Size (um):	0.800
Method SOP (Revision No.):	ISO 10312: 1995
Grid Storage Location:	2568K

Client Sample Number:	0-235-0013
Date received by lab:	07/05/07
Lab Job Number:	RTP-3582-SO
Lab Sample Number:	358081
Chain of Custody Number:	0-235-04/04/07-0002

Number of grids prepared:	3
Prepared by:	A. Steiner
Preparation date:	07/13/07
Preparation Type: (D=Direct, I=Indirect, A=Indirect, ashed)	D
Primary Filter Area (mm ²):	385
Secondary Filter Area (mm ²):	
F-factor:	1,000
Filter Status: (A=Analyzed, O=Overloaded, D=Damaged, M=Missing, C=Canceled)	A
Analyzed by:	J. XU
Analysis date:	06/23/07

Indirect Prep, Not Ashed	Fraction of primary filter used
	Total resuspension volume (mL)
	Volume applied to secondary filter (mL)

Indirect Prep, Ashed	Fraction of primary filter used
	Total resuspension volume, pre-ashing (mL)
	Volume applied to filter for ashing (mL)
	Fraction of filter that was ashed
	Volume used to resuspend ashed residue (mL)
	Volume applied to secondary filter (mL)

Sample Type: (FS=Field Sample, FB=Field Blank, LT=Lot Blank, QC=Lab QC)	FS
QC Sample Type: (Not QC, LB=Lab Blank, RS=Recount Same, RD, Recount Diff, RP=Reprep, VA=Verified Analysis, IL=Interlab)	Not QC
Media: (Air, Dust, N/A)	Air
Air volume (L) or dust area (cm ²):	2200

COMMENTS

--	--

If sample was analyzed using more than one TEM instrument, enter TEM instrument details below.

Instrument #2	Instrument #3
Instrument:	
Voltage (kV):	
Magnification:	

If sample was analyzed by more than one analyst or across multiple analysis dates, enter analysis details below.

Analyst #2	Analyst #3
Analyzed by:	
Analysis date:	

IMPORTANT NOTE: If this sample was analyzed using more than one instrument, by more than one analyst, or across multiple analysis dates, be sure to complete the column labeled "Multiple" when entering raw structure results for each grid opening.

10,000 X

1.20

RTP-EPA Project National Asbestos Data Entry Spreadsheet (NADES) for Air & Dust Analysis by Superfund TEM

ERROR CHECK	
OK	No errors found

Sample Type	Field Sample
QC Sample Type	Not QC
Sample Status	Analyzed
Analysis Date	7/19/2007

Media Air	Direct
Sample Prep	Direct
QA by	B. U.
QA Date	8/19/2007

CLIENT SAMPLE ID: 0-253-0014	
LAB SAMPLE ID: 53902	
Data Entry by: B. U.	
Data Entry Date: 7/19/2007	

Grid	Grid Opening	Structure Type	No. of Structures	Dimensions (a)	Length	Width	Identification Code (b)	Mineral Type (c)	Other Mineral Description	1 = Yes, 0 = No	Switch	Photo	EOS	Comments
1	D1	MD11	1	0	24.5	8.5	ADX	AN			1			
1	D1	MF	2	1	24.5	8.5	ADX	AN			1			
1	D3	MD11	2	0	25.7	8.5	ADX	AN			1			
1	D3	MF	2	2	21	0.65	ADX	AN			1			
1	D6	ND												
1	D7	ND												
1	B9	F	3	3	50	2.0	ADX	AN			1			cleavage fiber
1	B1	ND												
1	B3	ND												
2	D7	ND												
2	D9	ND												
2	G4	ND												
2	G6	ND												
2	G8	ND												
2	A3	ND												

5393-0277

ABBREVIATED NOTES:

(a) Enter dimensions either in absolute units (um) or in screen units. If reported as screen units, confirm that the Length & Dimension Scales are set as appropriate.

(b) See Annex D of ISO 10312 for identification codes.

(c) Valid Mineral Types:

AC actinolite
AM amosite
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
OA other amphibole

NAM non-asbestos material

Amosite Solid solution series: Amosite, cummingtonite-grunerite
Trem-Acl Solid solution series: Tremolite-Actinolite

OM other mineral type (specify in "other mineral description" field)

OM Description Standard Selections:

Sepiolite
Wollastonite
Winchite
Richterite
Eriolite

(d) Populate this field only if sample was analyzed using more than one instrument, by more than one analyst, or across multiple analysis dates.

ERROR CODES:

A Primary/Total entry is not sequential

B Mineral class type is not valid

C Structure dimensions are missing or are not valid

D Total # structures with complex do not match information provided in a

E # structures > 5um with complex do not match information provided in a

F structure type with complex does not match information provided in a

G Identified as non-countable structure (total = 0) without comment

RTP-EPA Project

National Asbestos Data Entry Spreadsheet (NADES) for Air & Dust Analysis by Superfund TEM

CLIENT SAMPLE ID: 0-253-0016
LAB SAMPLE ID: 555083

Media	Air
Sample Prep	Direct

Sample Type	Field Sample
QC Sample Type	Not QC
Sample Status	Anal/zed
Analysis Date	7/18/2007

Data Entry by: A. STEINER
Data Entry Date: 8/15/2007

QA by:	B. Li
QA Date:	8/19/2007

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions (a)		Identification Code (b)	Mineral Type (c)	Other Mineral Description	1 = yes, blank = no			Comments
			Primary	Total	Length	Width				Sketch	Photo	EDS	
1	C1	MD32	1		100.25	25	ADX /	AN /			1 /		
1	C1	MB		1	100.25	2.5	ADX /	AN /			1 /		
1	C1	MB		2	27.5	1	ADX /	AN /			1 /		
1	C1	MF			4	0.7	ADX /	AN /			1 /		not done
1	C3	NO /											
1	C5	NO /			70	3	ADX /	AN /					
1	C7	MD11	2		55	17	ADX /	AN /			1 /		
1	C7	MB		3	55	2.5	ADX /	AN /					
1	C9	B	3	4	200	4	ADX /	AN /			1 /		
1	E1	ND											
1	E3	NO											
2	D2	NO											
2	D4	NO											
2	D6	NO											
2	D8	NO											
2	D10	NO											
2	H4	MD11	4		22	10	ADX /	AN /					cleavage fiber
2	H4	MF		5	22	3	ADX /	AN /					
2	H4	CD33	5		31	7	ADX /	AN /					
2	H4	CB		6	31	1.3	ADX /	AN /					
2	H4	CB		7	8	0.75	ADX /	AN /					
2	H4	CF		8	12	0.15	ADX /	AN /					

S393-0288

0 ABBREVIATED NOTES:

(a) Enter dimensions either in absolute units (um) or in screen units. If reported as screen units, confirm that the Length & Dimension Scales are set as appropriate.

(b) See Annex D of ISO 10312 for identification codes.

(c) Valid Mineral Types:

AC	actinidia	Seget
AM	amelle	Wald
AN	anthophylla	Wind
CH	chrysophylla	Rich
CR	crocodilla	Esch
TR	trimalle	
LA	Libby amphis	OM Destac
OA	other amphis	
NAM	non-actinidia	
Amelle	Solid solution	
Trim-Act	Solid solution	
OM	other mineral	

(d) Populate this field only if sample was analyzed using more than one instrument, by more than one analyst, or across multiple analysts' dates.

ERROR CODES:

A	PrivacyTotal entry is not sequential
B	Mineral class type is not valid
C	Structure dimensions are missing or are not valid
D	Total # structures with complex do not match information provided in # structures > 5um when complex do not match information provided in # structures
E	Structure type with complex does not match information provided in # structures
F	Identified as non-countable structure Total = 0 without comment

5393-0288

10,606X

RTP-EPA Project
National Asbestos Data Entry Spreadsheet (NADES) for Air & Dust Analysis by Superfund TEMCLIENT SAMPLE ID: 0-253-0016
LAB SAMPLE ID: 558084Media: Air
Sample Prep: DirectSample Type: Field Sample
QC Sample Type: Not QC
Sample Status: Analyzed
Analysis Date: 7/27/2007Data Entry by: A. STEINER
Data Entry Date: 01/15/2007QA by: B. LI
QA Date: 8/19/2007

Grid	Grid Opening	Structure Type	No. of Structures	Dimensions (a)	Length	Width	Identification Code (b)	Mineral Type (c)	Other Mineral Description	1 = yes, blank = no	Station	Photo	EDS	Comments
1	D2	ND	1	11.3	0.75	ADX	AN	AN			1	1	1	
1	D4	F	1	11.3	0.75	ADX	AN	AN			1	1	1	
1	D6	ND	1	11.3	0.75	ADX	AN	AN			1	1	1	
1	D8	ND	1	11.3	0.75	ADX	AN	AN			1	1	1	
1	D10	F	2	22	0.9	ADX	AN	AN			1	1	1	
1	I1	ND	1	11.3	0.75	ADX	AN	AN			1	1	1	
1	I3	ND	1	11.3	0.75	ADX	AN	AN			1	1	1	
2	B1	ND	3	52.5	7.5	ADX	AN	AN			1	1	1	
2	B1	MF	3	52.5	7.5	ADX	AN	AN			1	1	1	
2	B1	MB	4	36.6	0.75	ADX	AN	AN			1	1	1	
2	B1	MB	5	24.5	0.85	ADX	AN	AN			1	1	1	
2	B1	MB	6	12.25	0.5	ADX	AN	AN			1	1	1	
2	B1	MF	2	3.2	0.25	ADX	AN	AN			1	1	1	
2	B3	ND	1	11.3	0.75	ADX	AN	AN			1	1	1	
2	B5	ND	1	11.3	0.75	ADX	AN	AN			1	1	1	
2	B7	MD10	4	15	10.5	ADX	AN	AN			1	1	1	
2	B7	MF	1	3.1	0.5	ADX	AN	AN			1	1	1	
2	B9	ND	1	11.3	0.75	ADX	AN	AN			1	1	1	
2	D9	ND	1	11.3	0.75	ADX	AN	AN			1	1	1	

S393-0305

ERROR CHECK
#VALUE!

ERROR CODE

ABBREVIATED NOTES:

(a) Enter dimensions either in absolute units (um) or in screen units. If reported as screen units, confirm that the Length & Dimension Scales are set as appropriate.

(b) See Annex D of ISO10312 for identification codes.

(c) Valid Mineral Types:

AC actinolite

AM amosite

AN anthophyllite

CH chrysotile

CR crocidolite

TR tremolite

LA Libby amphibole

QA other amphibole

NAM non-asbestos material

Amosite Solid solution series: Tremolite-Actinolite

Trem-Act Solid solution series: Tremolite-Actinolite

OM other mineral type (specify in "other mineral description" field)

CM Description Standard Selections:

Serpentine

Wollastonite

Winchite

Richterite

Enstatite

(d) Populate this field only if sample was analyzed using more than one instrument, by more than one analyst, or across multiple analysis dates.

ERROR CODES:

A Primary/Total entry is not sequential

B Mineral class type is not valid

C Structure dimensions are missing or are not valid

D total # structures with complex do not match information provided in a

E # structures > sum with complex do not match information provided in a

F structure type with complex does not match information provided in a

G identified as non-countable structure (total = 0) without comment

10,000 X

RTP-EPA Project
National Asbestos Data Entry Spreadsheet (NADES) for Air & Dust Analysis by Superfund TEMCLIENT SAMPLE ID: 0-253-0017
LAB SAMPLE ID: 558085Media Air
Sample Prep DirectSample Type Field Sample
QC Sample Type Not QC
Sample Status Analyzed
Analysis Date 7/23/2007Data Entry by: A. STEINER
Data Entry Date: 8/15/2007QA by: B. U
QA Date: 8/19/2007

Grid	Grid Opening	Structure Type	No. of Structures	Dimensions (in)	Identification Code (b)	Mineral Type (c)	Other Mineral Description	1 = Yes, blank = no	Photo	EDS	Comments
1	B1	B	1	25	ADK	AN		1			cleanest bundle
1	B3	MD11	2	25.75	ADK	AN		1			
1	B3	MB	2	25.75	ADK	AN		1			
1	B3	MD20	0	10.5	ADK	AN		1			cleanest
1	B3	MF	0	2.5	ADK	AN		1			not porous
1	B3	MF	0	3.28	ADK	AN		1			
1	B3	F	3	15	ADK	AN		1			
1	B5	ND	4	125	ADK	AN		1			
1	B7	CD63	4	125	ADK	AN		1			
1	B7	CB	4	125	ADK	AN		1			
1	B7	CB	5	35	ADK	AN		1			
1	B7	CF	6	7.5	ADK	AN		1			
1	B7	CF	0	3.75	ADK	AN		1			
1	B7	CB	0	3.5	ADK	AN		1			
1	B9	ND	0	7.75	ADK	AN		1			
1	E10	MD11	5	7.75	ADK	AN		1			
1	E10	MF	7	7.75	ADK	AN		1			
1	E9	MD21	6	24	ADK	AN		1			
1	E9	MF	8	24	ADK	AN		1			
1	E9	MF	0	2.5	ADK	AN		1			
1	C1	MD10	0	3.5	ADK	AN		1			
1	C1	MF	0	2.75	ADK	AN		1			
1	C1	CD22	7	15	ADK	AN		1			
1	C1	CF	0	15.5	ADK	AN		1			
1	C1	CF	0	13	ADK	AN		1			
1	C1	MD21	0	12	ADK	AN		1			
1	C1	MF	0	12	ADK	AN		1			
1	C1	MF	0	2.2	ADK	AN		1			
1	C1	MD11	8	8	ADK	AN		1			
1	C1	MF	0	8	ADK	AN		1			
1	C1	F	0	8	ADK	AN		1			
1	C1	MD11	10	10.5	ADK	AN		1			
1	C1	MF	0	11.25	ADK	AN		1			
1	C3	ND	0	11.25	ADK	AN		1			
1	C3	F	11	12	ADK	AN		1			
1	E10	ND	0	12	ADK	AN		1			
1	G10	ND	0	12	ADK	AN		1			
1	G8	MD21	12	31	ADK	AN		1			
1	G8	MF	0	31	ADK	AN		1			
1	G8	MF	0	4	ADK	AN		1			
1	G8	MD21	13	16	ADK	AN		1			
1	G8	MF	0	2.5	ADK	AN		1			
1	G8	MR11	0	5.25	ADK	AN		1			

5393-0311

ERROR CHECK
#VALUE!

APPROVAL NOTES

(a) Enter dimensions either in absolute units (in) or in screen units. If reported as screen units, confirm that the Length & Dimension Scales are set as appropriate.

(b) See Annex D of ISO10312 for identification codes.

(c) Valid Mineral Types:

AC actinolite
AM amosite
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
OA other amphibole
NAM non-asbestos material
Amosite Solid solution series: Amosite, cummingtonite-grunerite
Trem-Aut. Solid solution series: Tremolite-Actinolite
OM other mineral type (specify in "other mineral description" field)

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

#VALUE!

(d) Populate this field only if sample was analyzed using more than one instrument, by more than one analyst, or across multiple analysis dates.

ERROR CODES:

A Primary/Total entry is not sequential
B Mineral class type is not valid
C Structure dimensions are missing or are not valid
D total # structures with complex do not match information provided in z
E # structures > sum with complex do not match information provided in z
F structure type with complex does not match information provided in z
G Identified as non-countable structure (total = 0) without comment

10,000X

RTP-EPA Project National Asbestos Data Entry Spreadsheet (NADES) for Air & Dust Analysis by Superfund TEM

CLIENT SAMPLE ID: 0-253-0018
LAB SAMPLE ID: 556066

Media Air:
Sample Prep Direct

Sample Type: Field Sample
QC Sample Type: Not QC
Sample Status: Analyzed
Analysis Date: 7/24/2007

Data Entry by: A. STEINER
Data Entry Date: 8/15/2007

QA by: B. LI
QA Date: 8/17/2007

ERROR CHECK
#VALUE!

Grid	Grid Opening	Structure Type	No. of Structures Primary	No. of Structures Total	Dimensions (a) Length	Dimensions (b) Width	Identification Code (b)	Mineral Type (c)	Other Mineral Description	1 = yes, blank = no Switch	Photo	EDS	Comments	ERROR CODE
1	H1	ND												
1	H3	MD31	1	1	24.5	4	ADX	AN		1		1		D
1	H3	MB	0	1	24	1.1	ADX	AN		1				#VALUE!
1	H3	MF	0	0	4.75	0.45	ADX	AN		1				#VALUE!
1	H3	MF	0	0	1.15	0.15	ADX	AN		1				
1	H5	ND												
1	H7	B	2	2	7.5	1	ADX	AN		1				
1	H9	MD11	3	3	25	7.5	ADX	AN		1				
1	H9	MB	0	3	19.5	6	ADX	AN		1				
1	H9	B	4	4	11.5	1	ADX	AN		1				
1	H9	B	5	5	8.2	0.65	ADX	AN		1				
1	I2	ND												
1	I4	F			3.5	0.65	ADX	AN		1				
1	I4	MD11			3.5	0.55	ADX	AN		1				
1	I4	MF			3.5	0.2	ADX	AN		1				
1	H1	MD11	6	6	25	22.5	ADX	AN		1				
1	H1	MF	6	6	25	0.75	ADX	AN		1				
1	H1	F	7	7	6	0.65	ADX	AN		1				
1	H3	F	8	8	12.5	2.3	ADX	AN		1				
1	H5	CD42	9	9	13.5	1.1	ADX	AN		1				
1	H5	CF	9	9	13.5	0.75	ADX	AN		1				
1	H5	CF	10	10	10.5	0.25	ADX	AN		1				
1	H5	CF	11	11	1.25	0.35	ADX	AN		1				
1	H5	CF	12	12	1.1	0.2	ADX	AN		1				
1	H7	MD11	10	10	37.5	6	ADX	AN		1				
1	H7	MB	13	13	37.5	2.25	ADX	AN		1				
2	H9	ND												
2	J10	ND												

ABBREVIATED NOTES:

(a) Enter dimensions either in absolute units (mm) or in screen units. If reported as screen units, confirm that the Length & Dimension Scales are set as appropriate.

(b) See Annex D of ISO 10312 for identification codes.

(c) Valid Mineral Types:

AC actinolite
AM amosite
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite

LA Libby amphibole
OA other amphibole
NAM non-asbestos material

Amosite Solid solution series: Amosite, cummingtonite-grunnite
Trem-Aut Solid solution series: Tremolite-Actinolite

OM other mineral type (specify in "other mineral description" field)

OM Description Standard Selections:

Serpentine
Wollastonite
Winchite
Richite
Eriolite

(d) Populate this field only if sample was analyzed using more than one instrument, by more than one analyst, or across multiple analysis dates.

ERROR CODES:

- A Primary/Total entry is not sequential
- B Mineral class type is not valid
- C Structure dimensions are missing or are not valid
- D Total # Structures with complex do not match information provided in 1
- E # Structures > Sum with complex do not match information provided in 1
- F Structure type with complex does not match information provided in 1
- G Identified as non-countable structure (total = 0) without comment

5393-0325

RTP-EPA Project National Asbestos Data Entry Spreadsheet (NADES) for Air & Dust Analysis by Superfund TEM

CLIENT SAMPLE ID: C-235-0019
LAB SAMPLE ID: 559087

Media: Air
Sample Prep: Direct

Sample Type: Field Sample
QC Sample Type: Not QC
Sample Status: Analyzed
Analysis Date: 7/24/2007

Date Entry by: J. STEINER
Data Entry Date: 8/18/2007

QA by: B. U.
QA Date: 8/19/2007

ERROR CHECK
ERROR - Check Values

Grid	Grid Opening	Structure	Type	No. of Samples	Primary	Total	Length	Width	Depth	Volume	Mass	Conc	Mineral Type	Other Mineral	Comments	ERROR CODE
1	B1	F	F	1	1	1	12.5	3.2	ADX	AN	1	1	AN	OK	clearance fiber	
1	B1	B	B	2	2	2	29.5	4.5	ADX	AN	1	1	AN		clearance bundle	
1	B1	B	B	3	3	3	7.5	2.5	ADX	AN	1	1	AN		clearance bundle	
1	B1	B	B	4	4	4	31.25	0.8	ADX	AN	1	1	AN		LOTECH 981000, clearance	
1	B1	MD31	5	5	5	5	11	5.5	ADX	AN	1	1	AN			
1	B1	MF	MF	6	6	6	8.5	0.5	ADX	AN	1	1	AN			
1	B1	MF	MF	7	7	7	3.1	0.3	ADX	AN	1	1	AN			
1	B1	MF	MF	8	8	8	2.5	0.25	ADX	AN	1	1	AN			
1	B1	MD11	8	8	8	8	13	4	ADX	AN	1	1	AN			
1	B1	MB	MB	9	9	9	8.8	1.25	ADX	AN	1	1	AN			
1	B1	MD31	7	7	7	7	13.5	5	ADX	AN	1	1	AN			
1	B1	MB	MB	8	8	8	13.5	3	ADX	AN	1	1	AN			
1	B1	MF	MF	10	10	10	2.25	0.8	ADX	AN	1	1	AN			
1	B1	MR10	11	11	11	11	3	0.25	ADX	AN	1	1	AN			
1	B3	F	F	8	8	8	19	1.5	ADX	AN	1	1	AN			
1	B3	MD42	9	9	9	9	17.5	6.2	ADX	AN	1	1	AN			
1	B3	MF	MF	13	13	13	7.75	1	ADX	AN	1	1	AN			
1	B3	MF	MF	14	14	14	5	1	ADX	AN	1	1	AN			
1	B3	MF	MF	15	15	15	3	0.25	ADX	AN	1	1	AN			
1	B3	MF	MF	16	16	16	2.5	0.4	ADX	AN	1	1	AN			
1	B3	MD10	10	10	10	10	5	4.8	ADX	AN	1	1	AN			
1	B3	MF	MF	17	17	17	3.5	0.2	ADX	AN	1	1	AN			
1	B3	MD11	11	11	11	11	17.25	11.5	ADX	AN	1	1	AN			
1	B3	MF	MF	18	18	18	17.25	3.25	ADX	AN	1	1	AN			
1	B3	MD42	12	12	12	12	55.1	13.5	ADX	AN	1	1	AN			
1	B3	MF	MF	19	19	19	55.1	1.25	ADX	AN	1	1	AN			
1	B3	MF	MF	20	20	20	4	0.4	ADX	AN	1	1	AN			
1	B3	MF	MF	21	21	21	2.5	0.4	ADX	AN	1	1	AN			
1	B3	MR11	13	13	13	13	13.5	2.5	ADX	AN	1	1	AN			
1	B3	MD11	13	13	13	13	10	2.25	ADX	AN	1	1	AN			
1	B3	MF	MF	19	19	19	10	0.75	ADX	AN	1	1	AN			
1	B3	MD11	14	14	14	14	19	5.5	ADX	AN	1	1	AN			
1	B3	MF	MF	24	24	24	16	4	ADX	AN	1	1	AN			
1	B3	MD30	15	15	15	15	22.8	10	ADX	AN	1	1	AN			
1	B3	MF	MF	25	25	25	2.8	0.35	ADX	AN	1	1	AN			
1	B3	MF	MF	26	26	26	1	0.15	ADX	AN	1	1	AN			
1	B3	MF	MF	27	27	27	1	0.15	ADX	AN	1	1	AN			
1	B3	MD32	16	16	16	16	43.5	12.5	ADX	AN	1	1	AN			
1	B3	MF	MF	28	28	28	35.5	1	ADX	AN	1	1	AN			
1	B3	MF	MF	29	29	29	11	2	ADX	AN	1	1	AN			
1	B3	MF	MF	30	30	30	3.5	0.75	ADX	AN	1	1	AN			
1	B5	B	B	17	17	17	2.25	0.4	ADX	AN	1	1	AN			
1	B5	CO22	18	18	18	18	40.5	10	ADX	AN	1	1	AN			
1	B5	CB	CB	32	32	32	40.5	6	ADX	AN	1	1	AN			
1	B5	CF	CF	33	33	33	10	1.5	ADX	AN	1	1	AN			
1	B5	MD30	19	19	19	19	14.5	3.5	ADX	AN	1	1	AN			
1	B5	MF	MF	34	34	34	2.5	0.65	ADX	AN	1	1	AN			
1	B5	MF	MF	35	35	35	1	0.15	ADX	AN	1	1	AN			
1	B5	MF	MF	36	36	36	0.9	0.2	ADX	AN	1	1	AN			
1	B5	MD22	20	20	20	20	8	6	ADX	AN	1	1	AN			
1	B5	MF	MF	37	37	37	8	1.25	ADX	AN	1	1	AN			
1	B5	MF	MF	38	38	38	6.5	0.25	ADX	AN	1	1	AN			
1	B5	MD32	21	21	21	21	41.5	11	ADX	AN	1	1	AN			
1	B5	MB	MB	39	39	39	41.5	4	ADX	AN	1	1	AN			
1	B5	MB	MB	40	40	40	13	1.13	ADX	AN	1	1	AN			
1	B5	MF	MF	41	41	41	2.5	0.5	ADX	AN	1	1	AN			
1	B5	MF	MF	42	42	42	2.5	0.5	ADX	AN	1	1	AN			
1	B5	MB	MB	43	43	43	1.1	0.2	ADX	AN	1	1	AN			
1	B5	MD10	22	22	22	22	11.5	11	ADX	AN	1	1	AN			
1	B5	MF	MF	44	44	44	4.5	0.75	ADX	AN	1	1	AN			
1	B5	MD10	23	23	23	23	18	17.25	ADX	AN	1	1	AN			
1	B5	MF	MF	45	45	45	1	0.25	ADX	AN	1	1	AN			
1	B5	MD32	24	24	24	24	7.5	7	ADX	AN	1	1	AN			

S393-0334

ABBREVIATED NOTES:
(d) Enter dimensions either in absolute units (mm) or in screen units. If reported as screen units, confirm that the Length & Dimension scales are set as appropriate.

(e) See Annex D of ISO10312 for identification codes.

(f) Valid Mineral Types:

- AC actinolite
- AM amphibole
- AN anthophyllite
- CH chrysotile
- CR crocidolite
- TR tremolite
- LA Libby amphibole
- OA other amphibole
- NAM non-asbestos material
- Amosite Solid solution series: Amosite, cummingtonite-grunnite
- Trem-Acid Solid solution series: Tremolite-Actinolite
- OM other mineral type (specify in "Other mineral description" field)
- CM Chemical Standard Selection:
- Sepiolite
- Wollastonite
- Winchite
- Richfieldite
- Enstatite

(g) Populate this field only if sample was analyzed using more than one instrument, by more than one analyst, or across multiple analysis dates.

ERROR CODES:

- A Primary/Total entry is not requested
- B Mineral class type is not valid
- C Structure dimensions are missing or are not valid
- D Total # structures with complex do not match information provided in structure type column
- E # structures > Sum with complex do not match information provided in structure type column
- F Structure type with complex does not match information provided in structure type column
- G Identified as non-countable structure (total = 0) without comment

284

1	B5	MB		48	8.5	1.15	ADK	OK	AN	OK
1	B6	MF		47	7.78	0.7	ADK		AN	
1	B8	MR10		48	2.5	0.1	ADK		AN	
1	B8	CO52	25	48	40.8	0.2	ADK		AN	
1	B8	CF		48	406	4	ADK		AN	
1	B8	CF		50	8	0.5	ADK		AN	
1	B8	CF		51	2.5	0.7	ADK		AN	
1	B8	CF		52	2.5	0.78	ADK		AN	
1	B8	CF		53	1.1	0.1	ADK		AN	
1	B8	MO33	20	54	14.75	9	ADK		AN	
1	B8	MO		54	6.5	1.2	ADK		AN	
1	B8	MF		55	8	0.9	ADK		AN	
1	B8	MF	0	56	7.25	0.6	ADK		AN	
1	B8	MF		57	1	0.25	ADK		AN	
1	B8	MF		58	1	0.3	ADK		AN	
1	B8	MO21	27	59	12.5	2.5	ADK		AN	
1	B8	MF		59	11.5	2.5	ADK		AN	
1	B8	MF		60	1.5	0.25	ADK		AN	
1	B8	MO21	28	61	17.5	7.8	ADK		AN	
1	B8	MF		62	9.3	2.25	ADK		AN	
1	B8	MF		63	4	0.25	ADK		AN	
1	B8	MF		63	3.5	0.25	ADK		AN	
1	B8	MF		64	2.75	0.6	ADK		AN	
1	B8	MF		65	2.5	0.25	ADK		AN	
1	B8	MR60		66	10.7	0.25	ADK		AN	
1	B8	MO21	28	67	14.9	1	ADK		AN	
1	B8	MR10		68	1.1	0.15	ADK		AN	
1	B8	MO24	30	69	0.6	0.3	ADK		AN	
1	B8	MF		70	10	0.25	ADK		AN	
1	B8	MF		71	0.8	1.1	ADK		AN	
1	B8	MF		72	5.1	0.7	ADK		AN	
1	B8	MF		73	8	0.5	ADK		AN	
1	B8	MF		74	2.5	0.1	ADK		AN	
1	B8	MR30		75	1.2	0.25	ADK		AN	
1	B8	MO21	31	76	0.6	10	ADK		AN	
1	B10	MO21	32	77	25	11	ADK		AN	
1	B10	MB		78	24	3.5	ADK		AN	
1	B10	MF		79	4.5	1.5	ADK		AN	
1	B10	MF		80	1.8	0.15	ADK		AN	
1	B10	MR10		81	1.5	0.15	ADK		AN	
1	B10	MR40	33	82	0.5	4.5	ADK		AN	
1	B10	MF		83	4	1.3	ADK		AN	
1	B10	MF		84	4	0.8	ADK		AN	
1	B10	MF		85	0.8	0.25	ADK		AN	
1	B10	MF		86	0.5	0.1	ADK		AN	
1	B10	MO21	34	87	20.5	13.5	ADK		AN	
1	B10	MF		88	5.5	0.3	ADK		AN	
1	B10	MF		89	4	0.13	ADK		AN	
1	B10	MF		90	3.5	0.9	ADK		AN	
1	B10	MF		91	1.25	0.15	ADK		AN	
1	B10	MF		92	0.9	0.1	ADK		AN	
1	B10	MF		93	4.4	0.5	ADK		AN	
1	B10	MF		94	17.5	7.5	ADK		AN	
1	B10	MO20	37	95	25	19	ADK		AN	
1	B10	MO44	38	96	13	11.5	ADK		AN	
1	B10	MF		97	13	0.5	ADK		AN	
1	B10	MF		98	8.5	0.7	ADK		AN	
1	B10	MF		99	7	1.25	ADK		AN	
1	B10	MF		100	5.25	0.9	ADK		AN	
1	B10	MO11	39	101	14	0.25	ADK		AN	
1	B10	MO11	40	102	22.5	1.5	ADK		AN	
1	B10	MF		103	10.75	1.5	ADK		AN	
1	B10	MO22	41	104	14	10	ADK		AN	
1	B10	MB		105	11	3.5	ADK		AN	
1	B10	MF		106	7.5	0.7	ADK		AN	
1	B10	MR10		107	0.8	0.07	ADK		AN	
1	B10	MO40	42	108	11	7.5	ADK		AN	
1	B10	MO20	43	109	15.05	4	ADK		AN	
1	B10	MO11	44	110	5.05	1.1	ADK		AN	
1	B10	MO11	45	111	11	4	ADK		AN	
1	B10	MO11	46	112	11	0.25	ADK		AN	
1	B10	MO20	47	113	3.75	3.2	ADK		AN	
1	B10	MO22	48	114	27.5	9	ADK		AN	
1	B10	MB		115	17	1.5	ADK		AN	

S393-0335

clearance floor

clearance floor

clearance bundle

hgc

10

1	1	D5	MF	107	12	3.2	ADK	AN	OK
1	1	D5	MF	108	3.5	0.05	ADK	AN	
1	1	D5	CD01	48	170	2	ADK	AN	
1	1	D5	CB	108	170	1.15	ADK	AN	
1	1	D5	CF	110	2	0.1	ADK	AN	
1	1	D5	CF	111	2	0.05	ADK	AN	
1	1	D1	MD11	45	9.75	2.25	ADK	AN	
1	1	D1	MF	112	9.75	0.3	ADK	AN	
1	1	D1	MC20	50	111	4	ADK	AN	
1	1	D1	F	51	111	5.5	ADK	AN	
1	1	D1	MD16	52	114	2	0.5	ADK	AN
1	1	D1	MF	115	9	2.25	ADK	AN	
1	1	D1	MF	115	3.1	0.4	ADK	AN	
1	1	D1	F	82	116	1.75	0.05	ADK	AN
1	1	D1	MD11	54	33.5	75.5	ADK	AN	
1	1	D1	MD	117	33.5	7.5	ADK	AN	
1	1	D1	MD32	55	14	10.25	ADK	AN	
1	1	D1	MF	118	9	0.65	ADK	AN	
1	1	D1	MF	119	9	1.5	ADK	AN	
1	1	D1	MF	120	1.2	0.25	ADK	AN	
1	1	D1	MC21	56	121	49	30	ADK	AN
2	2	D3	MD10	57	2.5	1	ADK	AN	
2	2	D3	MF	122	2.5	0.5	ADK	AN	
2	2	D3	MD20	58	20.5	18.5	ADK	AN	
2	2	D3	MF	123	2.25	0.5	ADK	AN	
2	2	D3	MF	124	1.75	0.51	ADK	AN	
2	2	D3	MD10	59	2.5	1	ADK	AN	
2	2	D3	MF	125	2.5	0.85	ADK	AN	
2	2	D3	F	60	129	1.1	0.25	ADK	AN
2	2	D3	MC20	61	127	6	3.5	ADK	AN
2	2	D3	F	62	128	18.5	3.25	ADK	AN
2	2	D3	F	63	129	9.5	1.2	ADK	AN
2	2	D3	CD+2	64	11.2	11	ADK	AN	
2	2	D3	CB	130	7.8	0.8	ADK	AN	
2	2	D3	CB	131	5.0	0.6	ADK	AN	
2	2	D3	CR+0	132	8.5	8	ADK	AN	
2	2	D3	F	65	133	1.78	0.4	ADK	AN
2	2	D3	F	66	134	2	0.15	ADK	AN
2	2	D3	MD33	67	70	15.5	ADK	AN	
2	2	D3	MF	135	62.5	5	ADK	AN	
2	2	D3	MF	136	20.3	2.4	ADK	AN	
2	2	D3	MF	137	5.9	1.1	ADK	AN	
2	2	D3	MD	138	4.85	0.48	ADK	AN	
2	2	D3	MF	139	2.9	0.1	ADK	AN	
2	2	D3	MF	140	1.5	0.25	ADK	AN	
2	2	D3	F	68	141	25.25	1.75	ADK	AN
2	2	D3	MD33	69	57	30.5	ADK	AN	
2	2	D3	MF	142	54	3	ADK	AN	
2	2	D3	MF	143	47	3.25	ADK	AN	
2	2	D3	MF	144	20	3.5	ADK	AN	
2	2	D3	MF	145	1.25	0.25	ADK	AN	
2	2	D3	MF	146	1.1	0.25	ADK	AN	
2	2	D3	F	70	147	1.5	0.45	ADK	AN
2	2	D3	F	71	148	2.75	0.25	ADK	AN
2	2	D3	MD32	72	50.5	11.5	ADK	AN	
2	2	D3	MF	149	52.6	5.3	ADK	AN	
2	2	D3	MF	150	9.25	1	ADK	AN	
2	2	D3	MF	151	3.5	1.1	ADK	AN	
2	2	D3	MF	152	3.25	0.4	ADK	AN	
2	2	D3	MF	153	1.25	0.25	ADK	AN	
2	2	D7	MD78	73	90	30	ADK	AN	
2	2	D7	MF	154	90	5	ADK	AN	
2	2	D7	MF	155	15	2.25	ADK	AN	
2	2	D7	MF	156	15	1.8	ADK	AN	
2	2	D7	MF	157	10	1.8	ADK	AN	
2	2	D7	MF	158	7.25	0.25	ADK	AN	
2	2	D7	MF	159	6	1.1	ADK	AN	
2	2	D7	MF	160	1.25	0.25	ADK	AN	
2	2	D7	F	74	161	2.75	0.45	ADK	AN
2	2	D7	F	75	162	9.3	1.7	ADK	AN
2	2	D7	F	76	163	4.25	0.25	ADK	AN
2	2	D7	MD11	77	164	7.6	5	ADK	AN
2	2	D7	MD21	78	17	1.4	ADK	AN	
2	2	D7	MD	165	17	1.5	ADK	AN	
2	2	D7	MF	166	3.5	0.7	ADK	AN	

S393-0336

S393-0336

484

2	D7	MC33	79	197	40	12.5	ADX	AK	AN
2	D7	MF		197	20	3.8	ADX		AN
2	D7	MF		198	15	4.7	ADX		AN
2	D7	MB		199	7	2.2	ADX		AN
2	D7	F	80	170	6.5	2	ADX		AN
2	D7	MC31	81	171	7.8	3.5	ADX		AN
2	D7	MF		172	4.45	1.4	ADX		AN
2	D7	MF		173	0.5	0.09	ADX		AN

S393-0337

10,000X

RTP-EPA Project National Asbestos Data Entry Spreadsheet (NADES) for Air & Dust Analysis by Superfund TEM

CLIENT SAMPLE ID: 0235-0019
LAB SAMPLE ID: 550097

Media: AY
Sample Prep: Direct

QA by: B, U
QA Date: 9/18/2007

Sample Type: Field Sample
QC Sample Type: Not QC
Sample Status: Analyzed
Analysis Date: 9/13/2007

Data Entry by: A. STERNER
Data Entry Date: 9/18/2007

Grid	Opening	Structure	Type	No. of Branches	Priority	Total	Length	Width	Identification Code	Mineral Type	Other Mineral	Description	Search	Probe	ED3	Comments	ERROR CODE
1	D2	MC31		1	1	1	9	4.5	ADK	AN	AN						
1	D2	CO52		2	1	2	14.25	14	ADK	AN	AN						
1	D2	CB		3	1	3	12.5	3	ADK	AN	AN						
1	D2	CB		3	1	3	12	2.5	ADK	AN	AN						
1	D2	MD21		3	1	3	5	2.5	ADK	AN	AN						
1	D2	MF		4	1	4	8	0.1	ADK	AN	AN						
1	D2	F		5	1	5	29	0.8	ADK	AN	AN						
1	D2	MO30		5	1	5	7.5	6.75	ADK	AN	AN						
1	D4	MO38		6	1	6	110	75	ADK	AN	AN						
1	D4	MF		7	1	7	54	6	ADK	AN	AN						
1	D4	MF		8	1	8	35	1	ADK	AN	AN						
1	D4	MF		9	1	9	37	9	ADK	AN	AN						
1	D4	MF		10	1	10	19	3	ADK	AN	AN						
1	D4	MR44		11	1	11	9.5	2.5	ADK	AN	AN						
1	F1	QD55		0	1	0	50	28	ADK	AN	AN						
1	F1	CF		12	1	12	25	4	ADK	AN	AN						
1	F1	CF		13	1	13	24	0.7	ADK	AN	AN						
1	F1	CF		14	1	14	15	7	ADK	AN	AN						
1	F1	CF		15	1	15	6.28	0.5	ADK	AN	AN						
1	F1	CF		16	1	16	0	1.1	ADK	AN	AN						
1	F1	QD65		7	1	7	35	12	ADK	AN	AN						
1	F1	CF		17	1	17	35	1	ADK	AN	AN						
1	F1	CF		18	1	18	20.5	0.75	ADK	AN	AN						
1	F1	CF		19	1	19	12	0.35	ADK	AN	AN						
1	F1	CF		20	1	20	7.75	0.25	ADK	AN	AN						
1	F1	CF		21	1	21	7	1.25	ADK	AN	AN						
1	F1	MD+9		8	1	8	80	47.5	ADK	AN	AN						
1	F1	MB		22	1	22	75	4.5	ADK	AN	AN						
1	F1	MB		23	1	23	12.3	0.9	ADK	AN	AN						
1	F1	MB		24	1	24	11.5	0.45	ADK	AN	AN						
1	F1	MB		25	1	25	7	1	ADK	AN	AN						
1	F1	MB		26	1	26	5.8	1	ADK	AN	AN						
1	F1	MR44		27	1	27	32.5	27.5	ADK	AN	AN						
1	F1	CF		28	1	28	19	12.75	ADK	AN	AN						
1	F1	CF		29	1	29	5.5	0.25	ADK	AN	AN						
1	F1	QD22		10	1	10	17	5.5	ADK	AN	AN						
1	F1	CF		30	1	30	8	1	ADK	AN	AN						
1	F1	CF		31	1	31	7.8	0.6	ADK	AN	AN						
1	F1	CF		32	1	32	39	33.5	ADK	AN	AN						
1	F1	CF		33	1	33	10	0.5	ADK	AN	AN						
1	F1	CF		34	1	34	30.5	2.5	ADK	AN	AN						
1	F1	CF		35	1	35	8.5	1	ADK	AN	AN						
1	F1	CF		36	1	36	8.5	0.5	ADK	AN	AN						
1	F1	CF		37	1	37	25	2.2	ADK	AN	AN						
1	F1	CF		38	1	38	5	1	ADK	AN	AN						
1	F1	CF		39	1	39	28.5	15	ADK	AN	AN						
1	F1	CF		40	1	40	53.5	14	ADK	AN	AN						
1	F1	CF		41	1	41	10	0.5	ADK	AN	AN						
1	F1	CF		42	1	42	14	0.5	ADK	AN	AN						
1	F1	CF		43	1	43	10	0.3	ADK	AN	AN						
1	F1	CF		44	1	44	5.2	0.25	ADK	AN	AN						
1	F1	CF		45	1	45	10	0.5	ADK	AN	AN						
1	F1	CF		46	1	46	24	0.5	ADK	AN	AN						
1	F1	CF		47	1	47	6	0.25	ADK	AN	AN						
1	F1	CF		48	1	48	15	0.5	ADK	AN	AN						
1	F1	CF		49	1	49	13	0.3	ADK	AN	AN						
1	F1	CF		50	1	50	10.5	9	ADK	AN	AN						
1	F1	CF		51	1	51	12.5	10.5	ADK	AN	AN						
1	F1	CF		52	1	52	5.5	1.1	ADK	AN	AN						
1	F1	CF		53	1	53	2.0	0.2	ADK	AN	AN						

S393-0352

ERROR CHECK
#VALUE!

ABBREVIATED NOTES:

(K) Enter dimensions either in absolute units (mm) or in screen units. If reported as screen units, confirm that the Length & Dimension scales are set as appropriate.

(L) See Annex D of ISO10312 for identification codes.

(M) Valid Mineral Types:

AC actinolite
AM amosite
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
OA non-asbestos mineral
NAM non-asbestos mineral
ASbestos solid solution series: Amosite, cummingtonite-grunnite
Trem-Ast solid solution series: Tremolite-Actinolite
OM other mineral type (specify in "other mineral description" field)
OM Description Standard Selections:
Serpentine
Wollastonite
Muscovite
Richterite
Enstatite

(N) Populate this field only if sample was analyzed using more than one instrument, by more than one analyst, or across multiple analysis dates.

ERROR CODES:

A Primary/Total entry is not sequential
B Mineral class type is not valid
C Structure dimensions are missing or are not valid
D total # structures with complex do not match information provided in structure type column
E # structures > sum with complex do not match information provided in structure type column
F structure type with complex does not match information provided in structure type column
G identified as non-countable structure (total = 0) without comment

#VALUE!

3 of 3

2	F3	MF	53	102	45	8	ADK	AN	OK
2	F3	MD11	53	102	29.7	4	ADK	AN	
2	F3	MF	54	104	28.8	1.25	ADK	AN	
2	H1	F	54	104	24.5	4.8	ADK	AN	
2	H1	MD11	55	105	23.75	10.5	ADK	AN	
2	H1	MF	56	106	27.75	1	ADK	AN	
2	H1	MD22	56	107	12.75	5.5	ADK	AN	
2	H1	MF	57	107	12.75	1.25	ADK	AN	
2	H1	MD11	57	107	7.75	1	ADK	AN	
2	H8	MF	57	107	22.5	21	ADK	AN	
2	H8	MD11	58	108	10.8	1.5	ADK	AN	
2	H8	MD11	58	108	8.25	2.75	ADK	AN	
2	H8	MD11	59	109	8.25	1.25	ADK	AN	
2	H8	MD11	59	110	17.8	8.5	ADK	AN	
2	H8	MD11	60	110	15.5	2.8	ADK	AN	
2	H8	MD21	60	111	20	3.5	ADK	AN	
2	H8	MF	61	111	19.5	0.8	ADK	AN	
2	H8	MD22	61	111	20.5	11	ADK	AN	
2	H8	MF	62	112	8	0.44	ADK	AN	
2	H8	MF	62	113	5	0.25	ADK	AN	
2	H8	F	62	114	10.5	3.25	ADK	AN	
2	H8	MD22	63	115	53.5	37.5	ADK	AN	
2	H8	MD11	63	115	53.5	2	ADK	AN	
2	H8	MF	64	116	15.75	1.8	ADK	AN	
2	H8	MD44	64	117	26	28.5	ADK	AN	
2	H8	MF	65	117	16.5	0.8	ADK	AN	
2	H8	MF	66	118	17.5	0.55	ADK	AN	
2	H8	MF	67	119	17.5	0.5	ADK	AN	
2	H8	MF	68	120	16	0.5	ADK	AN	
2	H8	MD11	69	121	18.5	5	ADK	AN	
2	H8	MF	70	121	18.5	2.1	ADK	AN	
2	H8	MD33	70	122	20.7	5.8	ADK	AN	
2	H8	MF	71	122	20.7	2.75	ADK	AN	
2	H8	MD11	71	123	6.5	1.1	ADK	AN	
2	H8	MD11	72	123	5	1	ADK	AN	
2	H8	MF	73	124	5	0.28	ADK	AN	
2	H8	MD21	73	124	8.85	3	ADK	AN	
2	H8	MF	74	125	6.8	0.5	ADK	AN	
2	H8	MD11	75	125	7.5	3.5	ADK	AN	
2	H8	MF	76	126	6	2	ADK	AN	
2	H8	MD32	76	127	12.5	6	ADK	AN	
2	H8	MF	77	127	12.25	1.4	ADK	AN	
2	H8	MD11	78	128	5	0.8	ADK	AN	
2	H8	MD11	79	128	28	16.5	ADK	AN	
2	H8	MF	80	129	28	3	ADK	AN	

5393-0354

Deleted 12/9/04
md

RTT-EPA Project
National Asbestos Data Entry Spreadsheet (NADES) for Air & Dust Analysis by Superfund TEM

CLIENT SAMPLE ID: G-253-0021
LAB SAMPLE ID: 566088

Data Entry by: A. STEINER
Data Entry Date: 8/15/2007

Media: Air
Sample Prep: Direct

QA by: B. U
QA Date: 8/19/2007

Sample Type: Field Sample
QC Sample Type: Not QC
Sample Status: Analyzed
Analysis Date: 8/15/2007

ERROR CHECK
#VALUE!

10,000X

Grid	Grid Opening	Structure Type	No. of Structures Primary	Dimensions (ft) Length	Width	Height	Mineral Type	Other Mineral Description	1 = YES, blank = NO	Station	EOS	Comments
1	B2	MF	1	31	31	ADX	AN					
1	B2	MF	1	12.75	1	ADX	AN					
1	B2	MF	1	11	0.2	ADX	AN					
1	B2	F	2	30	1.1	ADX	AN					
1	B2	F	3	4	50.75	2.3	ADX	AN				
1	B2	MF	4	32	6	ADX	AN					
1	B2	MF	5	32	2	ADX	AN					
1	B2	MF	3	3	0.8	ADX	AN					
1	B5	MF	5	44.5	14	ADX	AN					
1	B5	MF	8	44.5	1	ADX	AN					
1	B5	MF	7	19.5	0.5	ADX	AN					
1	B5	MF	3	5	0.25	ADX	AN					
1	B8	MF	8	50.5	7	ADX	AN					
1	B8	MF	8	50.5	2	ADX	AN					
1	B8	MF	2	2	0.3	ADX	AN					
1	B8	MF	7	30.5	15	ADX	AN					
1	B8	MF	9	30.5	2.5	ADX	AN					
1	B8	MF	10	9.5	1.8	ADX	AN					
1	B8	MF	11	5	0.8	ADX	AN					
1	B8	MF	4	4.4	1.4	ADX	AN					
1	B10	MF	8	17.5	10	ADX	AN					
1	B10	MF	12	9	0.8	ADX	AN					
1	B10	MF	9	119.5	3	ADX	AN					
1	B10	MF	13	118.5	3	ADX	AN					
1	E2	MF	10	7.5	4.3	ADX	AN					
1	E2	MF	14	5.5	0.8	ADX	AN					
1	E2	MF	11	27.5	22	ADX	AN					
1	E2	MF	15	19.3	2	ADX	AN					
1	E2	MF	12	19	21.8	2	ADX	AN				
1	E4	MF	13	38	15	ADX	AN					
1	E4	MF	17	35.5	2	ADX	AN					
1	E4	MF	18	9	0.9	ADX	AN					
1	E4	MF	14	90	6	ADX	AN					
1	E4	MF	19	90	1	ADX	AN					
1	E4	MF	9	9	1.4	ADX	AN					
1	E4	MF	20	8	0.5	ADX	AN					
1	E4	MF	21	22.5	2.5	ADX	AN					
1	E4	MF	21	22.5	1.4	ADX	AN					
2	A3	MF	17	115	35	ADX	AN					
2	A5	MF	22	19	2.5	ADX	AN					
2	A5	MF	23	10	2.25	ADX	AN					
2	A8	MF	24	5.1	0.95	ADX	AN					
2	A8	MF	19	19	5	ADX	AN					
2	A8	MF	25	19	0.45	ADX	AN					
2	A8	MF	26	40	22	ADX	AN					
2	A8	MF	28	19.5	2	ADX	AN					
2	A10	MF	21	89	10	ADX	AN					
2	A10	MF	27	59	2.5	ADX	AN					
2	A10	MF	22	15	1.75	ADX	AN					
2	A10	MF	23	14	8	ADX	AN					
2	A10	MF	29	14	0.9	ADX	AN					
2	C1	MF	34	40	15	ADX	AN					
2	C1	MF	30	40	4.45	ADX	AN					
2	C3	F	25	31	1.5	ADX	AN					
2	C3	F	26	32	32.5	1.4	ADX	AN				
2	C10	MF	27	21.1	5	ADX	AN					
2	C10	MF	33	21.1	1	ADX	AN					

ABBREVIATED NOTES:

(A) Enter dimensions either in statute units (feet) or in metric units. If reported in metric units, confirm that the Length & Dimension scales are set as appropriate.

(B) See Annex D of ISO10312 for identification codes.

(C) Valid Mineral Types:
AC actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(D) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(E) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(F) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(G) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(H) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(I) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(J) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(K) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(L) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(M) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(N) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(O) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(P) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(Q) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(R) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

(S) Values:
AN actinolite
AM amphibole
AN anthophyllite
CH chrysotile
CR crocidolite
TR tremolite
LA Libby amphibole
CA other amphibole
NAM non-asbestos material

APPENDIX D
Communications
Sapphire Mine
Verification/Validation Report
February 2008

Losurdo, Antonio

From: Losurdo, Antonio
Sent: Tuesday, November 27, 2007 2:43 PM
To: 'brass.brian@epamail.epa.gov'
Cc: Soroka, Joseph M; Killeen, Deborah A; Losurdo, Antonio; Schmidt, Howard D
Subject: Sapphire Valley 1 Day 1 Data (WA#0-253)

Hi Brian,

As per your request, I examined the asbestos analysis (ISO10312:1995 and PCME) for the Sapphire March 2007 results provided in the electronic spread sheets (Data Entry 1, Data Entry 2 and NADES Report). The electronic data were compared with hand written laboratory data sheets to identify discrepancies which may impact the Certificate of Analysis Results Summary Table. The observed inconsistencies are recapitulated in the attached PDF file.

Please review the attached. If this is satisfactory, we can issue a final report or memo. If you need additional information/review let us know so that we may complete the project.

Thanks,

Tony



Sapphire_Asbestos
_Final_0253.P...

Antonio Lo Surdo, Ph.D.
Sr. Organic Analytical Chemist
Lockheed Martin REAC
Phone: 732-494-4012
Fax: 732-494-4021
E-mail: antonio.losurdo@lmc.com

ASBESTOS SPREAD SHEETS VALIDATION FOR SAPPHIRE VALLEY
(Original Submitted Memo Report for Sapphire (1) WA# 0-253)

Twenty-six samples were examined for asbestos analysis (ISO10312:1995 and PCME). The results provided in the electronic spread sheets (Data Entry 1, Data Entry 2 and NADES Report) were compared with hand written laboratory raw data sheets to identify discrepancies which may impact the Certificate of Analysis Results Summary Table. The following summarize the inconsistencies found: laboratory

- 1.) Certificate of Analysis Results Summary Table listed filter pore size as 0.45 um vs. 0.800 um listed on the Data Entry 1 spread sheet.
- 2.) Several transcription errors for the Site/project identifier code on the Data Entry 1 spread sheets, i.e., 0-235 vs. 0-253, the correct project code.
- 3.) Several transcription errors between laboratory hand written sheets and Data Entry 2 spread sheets. See attached.
- 4.) COC transcription errors on Certificate of Analysis Results Summary Table, i.e., listed COC: 0-235-04/04/07-0002 and -0003 vs. 0-253-04/04/07-0002 and -0003.
- 5.) Several transcription errors between laboratory hand written sheets, Certificate of Analysis Results Summary Table and Data Entry 2 spread sheets for total number of structures detected in samples 0-253-0017 through 0-253-0019 of the PCME analysis. See attached.
- 6.) Transcription errors for total number of grids for sample 0-253-0021 between Certificate of Analysis Results Summary Table and NADES report spread sheet for the PCME analysis.
- 7.) Error Codes detected on Data Entry 2 spread sheets. See attached (Table 1.1).
- 8.) For samples 0-253-0017 to -0019, the reported concentration (s/cc) and density (s/mm²) should be revised due to errors in reported total structures detected. (See attached corrected entries).
- 9.) For sample 0-253-0021, the limit of detection (s/mm²), concentration (s/cc) and density (s/mm²) should be revised due to errors in the analytical sensitivity and # of grid openings. (See attached corrected entries).

Losurdo, Antonio

From: Brass.Brian@epamail.epa.gov
Sent: Monday, December 10, 2007 12:39 PM
To: Losurdo, Antonio
Cc: Losurdo, Antonio; Killeen, Deborah A; Schmidt, Howard D; Soroka, Joseph M; Hoppe, Michael G; Schaefer.Joe@epamail.epa.gov
Subject: Re: Sapphire Valley 1 Day 1 Data (WA#0-253)

Tony,

The QA/QC procedures and format are fine. Please finalize. Also, please add a verification between the SCRIBE sample volumes and the NADES sample volumes by combining the 2 data sets and running a IF logic check in Excel. For example, IF SCRIBE volume equals NADES volume then TRUE.

Joe Schaefer and Olex have been involved with this check and it should all be done electronically.

Please call me with questions.

Joe Soroka, can you prioritize the Dunn County QA/QC to have it completed this week?

Brian Brass
U.S. EPA /ERT-West
4220 South Maryland Parkway
Building D Suite 800
Las Vegas, Nevada 89119
(702) 290-7081 Cell
(702) 784-8001 Fax

"Losurdo,
Antonio"
<antonio.losurdo@lmco.com>

11/27/2007 11:43
AM

Brian Brass/LV/USEPA/US@EPA

To

cc

"Soroka, Joseph M"
<joseph.m.soroka@lmco.com>,
"Killeen, Deborah A"
<deborah.a.killeen@lmco.com>,
"Losurdo, Antonio"
<antonio.losurdo@lmco.com>,
"Schmidt, Howard D"
<howard.d.schmidt@lmco.com>

Subject

Sapphire Valley 1 Day 1 Data
(WA#0-253)

Hi Brian,

As per your request, I examined the asbestos analysis (ISO10312:1995 and PCME) for the Sapphire March 2007 results provided in the electronic spread sheets (Data Entry 1, Data Entry 2 and NADES Report). The electronic data were compared with hand written laboratory data sheets to identify discrepancies which may impact the Certificate of Analysis Results Summary Table. The observed inconsistencies are recapitulated in the attached PDF file.

Please review the attached. If this is satisfactory, we can issue a final report or memo. If you need additional information/review let us know so that we may complete the project.

Thanks,

Tony

<<Sapphire_Asbestos_Final_0253.PDF>>

Antonio Lo Surdo, Ph.D.
Sr. Organic Analytical Chemist
Lockheed Martin REAC
Phone: 732-494-4012
Fax: 732-494-4021
E-mail: antonio.losurdo@lmc.com

[attachment "Sapphire_Asbestos_Final_0253.PDF" deleted by Brian Brass/LV/USEPA/US]

Losurdo, Antonio

From: Brass.Brian@epamail.epa.gov
Sent: Monday, December 10, 2007 1:00 PM
To: Schmidt, Howard D
Cc: Losurdo, Antonio; Killeen, Deborah A; Schaefer.Joe@epamail.epa.gov; Soroka, Joseph M; Hoppe, Michael G
Subject: RE: Sapphire Valley 1 Day 1 Data (WA#0-253)

Thanks Howard,

I was aware that the check had been done for Sapphire, the results of the check need to be mentioned in the QA/QC report with a brief statement that the check was run and all results verified or corrected.

I wanted to make sure the same verification was done for Dunn County and that a mention of the sample volume verification was included in the QA memo.

Brian Brass
U.S. EPA /ERT-West
4220 South Maryland Parkway
Building D Suite 800
Las Vegas, Nevada 89119
(702) 290-7081 Cell
(702) 784-8001 Fax

"Schmidt, Howard
D"
<howard.d.schmidt@lmco.com>

12/10/2007 09:42
AM

Brian Brass/LV/USEPA/US@EPA,
"Losurdo, Antonio"
<antonio.losurdo@lmco.com>

To

cc

"Losurdo, Antonio"
<antonio.losurdo@lmco.com>,
"Killeen, Deborah A"
<deborah.a.killeen@lmco.com>,
"Soroka, Joseph M"
<joseph.m.soroka@lmco.com>,
"Hoppe, Michael G"
<michael.g.hoppe@lmco.com>, Joe
Schaefer/ERT/R2/USEPA/US@EPA
Subject
RE: Sapphire Valley 1 Day 1 Data
(WA#0-253)

Brian,

The auto-check of sample numbers and sample volumes between NADES and SCRIBE has already been incorporated into an Excel Macro by Olex. It is run concurrently with the reformatting of the NADES spreadsheet into a .CSV that can be imported into SCRIBE

I have attached the Macro and renamed the extension. After downloading rename the extension .EXE

Howard

-----Original Message-----

From: Brass.Brian@epamail.epa.gov [mailto:Brass.Brian@epamail.epa.gov]
Sent: Monday, December 10, 2007 12:39 PM
To: Losurdo, Antonio
Cc: Losurdo, Antonio; Killeen, Deborah A; Schmidt, Howard D; Soroka, Joseph M; Hoppe, Michael G; Schaefer.Joe@epamail.epa.gov
Subject: Re: Sapphire Valley 1 Day 1 Data (WA#0-253)

Tony,

The QA/QC procedures and format are fine. Please finalize. Also, please add a verification between the SCRIBE sample volumes and the NADES sample volumes by combining the 2 data sets and running a IF logic check in Excel. For example, IF SCRIBE volume equals NADES volume then TRUE.

Joe Schaefer and Olex have been involved with this check and it should all be done electronically.

Please call me with questions.

Joe Soroka, can you prioritize the Dunn County QA/QC to have it completed this week?

Brian Brass
U.S. EPA /ERT-West
4220 South Maryland Parkway
Building D Suite 800
Las Vegas, Nevada 89119
(702) 290-7081 Cell
(702) 784-8001 Fax

"Losurdo,
Antonio"
<antonio.losurdo@lmco.com>

11/27/2007 11:43 AM

Brian Brass/LV/USEPA/US@EPA

To

cc

"Soroka, Joseph M"
<joseph.m.soroka@lmco.com>,
"Killeen, Deborah A"
<deborah.a.killeen@lmco.com>,
"Losurdo, Antonio"
<antonio.losurdo@lmco.com>,
"Schmidt, Howard D"
<howard.d.schmidt@lmco.com>

Subject

Sapphire Valley 1 Day 1 Data
(WA#0-253)

Hi Brian,

As per your request, I examined the asbestos analysis (ISO10312:1995 and PCME) for the Sapphire March 2007 results provided in the electronic spread sheets (Data Entry 1, Data Entry 2 and NADES Report). The electronic data were compared with hand written laboratory data sheets to identify discrepancies which may impact the Certificate of Analysis Results Summary Table. The observed inconsistencies are recapitulated in the attached PDF file.

Please review the attached. If this is satisfactory, we can issue a final report or memo. If you need additional information/review let us know so that we may complete the project.

Thanks,

Tony

<<Sapphire_Asbestos_Final_0253.PDF>>

Antonio Lo Surdo, Ph.D.
Sr. Organic Analytical Chemist
Lockheed Martin REAC
Phone: 732-494-4012
Fax: 732-494-4021
E-mail: antonio.losurdo@lmc.com

[attachment "Sapphire_Asbestos_Final_0253.PDF" deleted by Brian Brass/LV/USEPA/US]

[attachment "CheckNadesLabs.demo" deleted by Brian Brass/LV/USEPA/US]

Losurdo, Antonio

From: Schmidt, Howard D
Sent: Monday, October 29, 2007 7:30 AM
To: Losurdo, Antonio
Subject: RE: Data Entry for Sapphire Valley 1 Asbestos (WA#0-253)

Tony,

Yes... Sapphire Mine is 0-253...

Howard

From: Losurdo, Antonio
Sent: Friday, October 26, 2007 11:10 AM
To: 'brass,brian@epamail.epa.gov'
Cc: Schmidt, Howard D; Soroka, Joseph M; Losurdo, Antonio
Subject: Data Entry for Sapphire Valley 1 Asbestos (WA#0-253)

For Sapphire Valley 1 the data package work assignment is 0-253. The project code on the NADES is 0-235. Should 0-235 be 0-253 on the NADES?

Thanks,

Tony

Antonio Lo Surdo, Ph.D.
Sr. Organic Analytical Chemist
Lockheed Martin REAC
Phone: 732-494-4012
Fax: 732-494-4021
E-mail: antonio.losurdo@lmc.com

Appendix B
Final Laboratory Reports – Soil Analysis
Sapphire Mine
Verification/Validation Report
July 2009

Check List for RTP Delivery Package

Company: Batta Laboratories, Inc.

EPA Job#: EP-C-04-032

EPA COC#: 0-253-04/04/07-0001

Lab Job#: N/A

<u>✓</u>	Summary Report
<u>✓</u>	Batta Data Sheet for the Summary Report
<u>✓</u>	Original EPA COC
<u>N/A</u>	AHERA/ISO Report Sheet (from EDD submitted)
<u>N/A</u>	Data Entry 1 Sheet (from EDD submitted)
<u>N/A</u>	Data Entry 2 Sheet (from EDD submitted)
<u>✓</u>	Copy of Analytical Benchsheets
<u> </u>	Miscellaneous (Specified in the comment box below)

Case Narrative/Comment:

This summary report is pursuant to EPA purchase order EP074000155 (EPA Contact Number: EP-C-04-032) for sample shipment received on July 5, 2007, consisting of 6 batches of samples (categorized with RTP-3562 through RTP-3567) and a batch of 14 samples (COC# 0253-04/04/07-0001) for asbestos, soil moisture and soil particle size, respectively. Each summary report is submitted based on the batch number or COC number as shown on the cover page that comes with each delivery package. The version of report in this delivery package is current and is intended to replace any previous versions of all formats, including electronic submissions. Accompanying this package is a CD-ROM that contains all reports in PDF format and analytical data of each sample analysis in NADES' EDD format. A read-me file is also included within the CD-ROM, which explains how EDD files were organized in terms of sample batches and analytical methods. Please read the read-me file before viewing the content of the accompanying CD-ROM. All EDD files within the CD-ROM are in lieu of any versions of NADES' EDD submitted previously.

Note: Original copy was sent out on 08/28/2007.

August 28, 2007

ATTN: Nardina Turner
11th Floor, Superfund Division
USEPA Region 4 Mailroom
Suite 9T25, 9th Floor
Sam Nunn Atlanta Federal Center
61 Forsyth St. SW
Atlanta, GA 30303

Subject: Analytical Results of Asbestos, Soil Moisture and Particle Size
EPA Contract No.: EP-C-04-032
Site No.: 0-253
EPA COC No.: 0-253-04/04/07-0001

Dear Nardina,

Please find the attached analytical reports of the above referenced analyses, which include Asbestos Analysis using CARB 435 (Attachment #1), Soil Particle Analysis using ASTM D422-63 (Attachment #2), Soil Moisture Analysis using ASTM D4643-00 (Attachment #3). The initial reports of analysis of soil particle and moisture by Craig Testing Laboratories of Maryland, Inc. are also attached in Attachment #4. Chain of Custody is included in Attachment #5. Should you have any questions, please do not hesitate to contact me.

Best wishes,

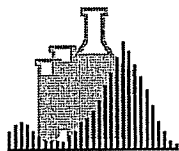


Bo Li, Ph.D.
Manager of Microscopy Services
Batta Laboratories, Inc.



ATTACHMENT #1

Certificate of PLM Analysis (CARB 435 Method)



BATTA LABORATORIES, INC.

A Certified MBE Company
Delaware Industrial Park, 6 Garfield Way
Newark, DE19713-5817
Tel. (302)737-3376 Fax (302) 737-5764



A.I.H.A./NLLP
#100448



NVLAP
#101032

Web: <http://www.battaenv.com> E-mail: battaenv@battaenv.com

CERTIFICATE OF PLM ANALYSIS

Page 1 of 3

Test Method: State of California Air Resources Board Method 435

Report Date: 8/27/2007

Sampling Data

BLI Project #: L537807
Project Name: 596607-RTP-EPA SAMPLES

Date Sampled: 3/28/2007

Sampled By: CLIENT

Date Analyzed: 7/30/2007

Sample ID		Client-supplied Data			Physical Data		Reported Results		
Lab Sample#	Client Sample#	Sample Location	Material Type	Friable?	Texture	Color	Non-asbestiform Components	Asbestiform Components	
559778	0-253-0049	CHISEL-DAY 1	bulk	n/a	firm	brown	85% non-fibrous	15% anthophyllite (Visual Estimate)	asbestos containing
559779	0-253-0050	SHOVEL-DAY 2	bulk	n/a	firm	gray	97.75% non-fibrous	2.25% anthophyllite	asbestos containing
559780	0-253-0051	OSC-UPPER SITE	bulk	n/a	firm	brown	96.75% non-fibrous	3.25% anthophyllite	asbestos containing
559781	0-253-0052	OSC-UPPER SITE DUP	bulk	n/a	firm	brown	94.5% non-fibrous	5.5% anthophyllite	asbestos containing
559782	0-253-0053	RAKE-DAY 1	bulk	n/a	firm	brown	93% non-fibrous	7% anthophyllite	asbestos containing

Note 1: Organically-bound, nonfriable material may interfere with the accurate quantification of asbestos. In these cases, the EPA recommends more definitive analysis by a matrix-reduction method (i.e. Chatfield SOP-1988-02, Rev.1)

Note 2: Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. Due to this, the EPA recommends more definitive analysis using analytical electron microscopy.

ANALYST: Asghar Keyvanfar

REVIEWED BY: [Signature] 08/28/07

*This report does not constitute endorsement by NVLAP and/or any other US government agencies.

*The test data pertain only to the items tested. No assumptions or conclusions should be made to materials or samples not analyzed. Furthermore, Batta Laboratories, Inc. assumes no responsibility for the accuracy of results influenced by the use of improper collection techniques or equipment.

* Due to the general heterogeneity of asbestos containing materials (ACM), EPA and OSHA have recommended submission of at least three samples of each type of materials for PLM analysis. Submission of fewer samples may compromise the accuracy of ACM determination.

* Electronic versions of the certificate of analysis (i.e. Excel files, PDF files, Word files, etc.) are not under the warranty of authenticity and accuracy of the original analytical results kept on file by the Batta Laboratories, Inc. (BLI). Under all circumstances BLI should be notified in writing for any changes made to these electronic certificates of analysis. Under no circumstances will BLI be liable for changes made to the electronic certificate of analysis without BLI's prior consent in writing.



BATTA LABORATORIES, INC.

A Certified MBE Company
Delaware Industrial Park, 6 Garfield Way
Newark, DE19713-5817
Tel. (302)737-3376 Fax (302) 737-5764



A.I.H.A./NLLP
#100448



NVLAP
#101032

Web: <http://www.battaenv.com> E-mail: battaenv@battaenv.com

CERTIFICATE OF PLM ANALYSIS

Page 2 of 3

Test Method: State of California Air Resources Board Method 435

Report Date: 8/27/2007

Sampling Data

BLI Project #: L537807
Project Name: 596607-RTP-EPA SAMPLES

Date Sampled: 3/28/2007
Sampled By: CLIENT
Date Analyzed: 7/30/2007

Sample ID		Client-supplied Data			Physical Data		Reported Results		
Lab Sample#	Client Sample#	Sample Location	Material Type	Friable?	Texture	Color	Non-asbestiform Components	Asbestiform Components	
559783	0-253-0054	RAKE-DAY 1 DUP	bulk	n/a	firm	brown	93.75% non-fibrous	6.25% anthophyllite	asbestos containing
559784	0-253-0055	RAKE-DAY 2	bulk	n/a	firm	brown	96.25% non-fibrous	3.75% anthophyllite	asbestos containing
559785	0-253-0093	CHISEL-DAY 2	bulk	n/a	firm	brown	88% non-fibrous	12% anthophyllite (Visual Estimate)	asbestos containing
559786	0-253-0094	CHISEL-DAY 3	bulk	n/a	firm	brown	90.75% non-fibrous	9.25% anthophyllite	asbestos containing
559787	0-253-0095	SHOVEL-DAY 3	bulk	n/a	firm	gray	100% non-fibrous	trace anthophyllite	non-asbestos containing

Note 1: Organically-bound, nonfriable material may interfere with the accurate quantification of asbestos. In these cases, the EPA recommends more definitive analysis by a matrix-reduction method (i.e. Chatfield SOP-1988-02, Rev.1)

Note 2: Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. Due to this, the EPA recommends more definitive analysis using analytical electron microscopy.

ANALYST: Asghar Keyvanfar

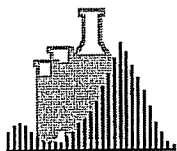
REVIEWED BY: [Signature] 08/28/07

*This report does not constitute endorsement by NVLAP and/or any other US government agencies.

*The test data pertain only to the items tested. No assumptions or conclusions should be made to materials or samples not analyzed. Furthermore, Batta Laboratories, Inc. assumes no responsibility for the accuracy of results influenced by the use of improper collection techniques or equipment.

* Due to the general heterogeneity of asbestos containing materials (ACM), EPA and OSHA have recommended submission of at least three samples of each type of materials for PLM analysis. Submission of fewer samples may compromise the accuracy of ACM determination.

* Electronic versions of the certificate of analysis (i.e. Excel files, PDF files, Word files, etc.) are not under the warranty of authenticity and accuracy of the original analytical results kept on file by the Batta Laboratories, Inc. (BLI). Under all circumstances BLI should be notified in writing for any changes made to these electronic certificates of analysis. Under no circumstances will BLI be liable for changes made to the electronic certificate of analysis without BLI's prior consent in writing.



BATTA LABORATORIES, INC.

A Certified MBE Company
Delaware Industrial Park, 6 Garfield Way
Newark, DE 19713-5817
Tel. (302) 737-3376 Fax (302) 737-5764



A.I.H.A./NLLP
#100448



NVLAP
#101032

Web: <http://www.battaenv.com> E-mail: battaenv@battaenv.com

CERTIFICATE OF PLM ANALYSIS

Page 3 of 3

Test Method: State of California Air Resources Board Method 435

Report Date: 8/27/2007

Sampling Data

BLI Project #: L537807
Project Name: 596607-RTP-EPA SAMPLES

Date Sampled: 3/28/2007
Sampled By: CLIENT
Date Analyzed: 7/30/2007

Sample ID		Client-supplied Data			Physical Data		Reported Results		
Lab Sample#	Client Sample#	Sample Location	Material Type	Friable?	Texture	Color	Non-asbestiform Components	Asbestiform Components	
559788	0-253-0096	RAKE-DAY 3	bulk	n/a	firm	brown	97.25% non-fibrous	2.75% anthophyllite	asbestos containing
559789	0-253-0100	OSC-JLW2	bulk	n/a	firm	brown	95.75% non-fibrous	4.25% anthophyllite	asbestos containing
559790	0-253-0101	OSC-JLW3	bulk	n/a	firm	gray	96.5% non-fibrous	3.5% anthophyllite	asbestos containing
559791	0-253-0102	OSC-JLW1	bulk	n/a	firm	gray	98.25% non-fibrous	1.75% anthophyllite	asbestos containing

Note 1 Organically-bound, nonfriable material may interfere with the accurate quantification of asbestos. In these cases, the EPA recommends more definitive analysis by a matrix-reduction method (i.e. Chatfield SOP-1988-02, Rev.1)

Note 2 Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. Due to this, the EPA recommends more definitive analysis using analytical electron microscopy.

ANALYST: Asghar Keyvanfar

REVIEWED BY: *[Signature]* 08/28/07

*This report does not constitute endorsement by NVLAP and/or any other US government agencies.

*The test data pertain only to the items tested. No assumptions or conclusions should be made to materials or samples not analyzed. Furthermore, Batta Laboratories, Inc. assumes no responsibility for the accuracy of results influenced by the use of improper collection techniques or equipment.

* Due to the general heterogeneity of asbestos containing materials (ACM), EPA and OSHA have recommended submission of at least three samples of each type of materials for PLM analysis. Submission of fewer samples may compromise the accuracy of ACM determination.

* Electronic versions of the certificate of analysis (i.e. Excel files, PDF files, Word files, etc.) are not under the warranty of authenticity and accuracy of the original analytical results kept on file by the Batta Laboratories, Inc. (BLI). Under all circumstances BLI should be notified in writing for any changes made to these electronic certificates of analysis. Under no circumstances will BLI be liable for changes made to the electronic certificate of analysis without BLI's prior consent in writing.



Refractive Index Oil Calibration Worksheet

Single Liquid Method - Dr Su 1993 Manuscript

Start with:

$$n_D^S = n_D^L + (\Delta^L - \Delta^S) * k_1$$

Becomes:

$$n_D^L = n_D^S - (\Delta^L - \Delta^S) * k_1$$

Where: n_D^L = Index of refraction of the liquid

n_D^S = Index of refraction of the solid

Δ^L = Dispersion coefficient of the liquid

Δ^S = Dispersion coefficient of the solid

k_1 = Conversion constant (from the matching wavelength to Hartman's Constant)

Date	Oil Used	Gargille Value (n _D 5893 Å)	Δ^L (from label)	Temp Coefficient (dn/dt (from label))	(n _D - n _D) Gargille Chart	Δ^S (from label)	Wavelength Observed	k_1 Conv. Factor	Temp (°) at Calibration	Calculated n _D	Lot # of R ₀ Oil (from label)
7-9-07	1.550	1.55158	0.0272	0.000491	0.01112	0.01112	570	0.10	25	1.549972	1106
	1.680	1.67827	0.0348	0.000475	0.01226	0.01226	610	-0.10		1.640524	4696
	1.605	1.60585	0.0243	0.000441	0.01570	0.01570	630	-0.19		1.6074845	1095
	1.625	1.62564	0.0275	0.000452	0.01759	0.01759	570	0.10		1.624649	0902
	1.640	1.64333	0.0299	0.000460	0.01343	0.01343					

Space for Calculations:

$$1.550 \quad \lambda_0 = 570 \quad K_0 = 0.10 \quad n_{LD} = 1.55158 - (0.0272 - 0.01112) \times 0.10$$

$$n_{LD} = 1.549972$$

$$1.680 \quad \lambda_0 = 610 \quad K_0 = -0.10 \quad n_{LD} = 1.67827 - (0.0348 - 0.01226) \times -0.10$$

$$n_{LD} = 1.680524$$

$$1.605 \quad \lambda_0 = 630 \quad K_0 = -0.19 \quad n_{LD} = 1.60585 - (0.0243 - 0.01570) \times -0.19$$

$$n_{LD} = 1.6074845$$

$$1.625 \quad \lambda_0 = 570 \quad K_0 = 0.10 \quad n_{LD} = 1.62564 - (0.0275 - 0.01759) \times 0.10$$

$$n_{LD} = 1.624649$$

Analyst Signature

QA/QC Mgr. Signature

Month July Year 2007

[Signature] 08/28/07

Lab Job # N/A

BLI Project # L537807

Name of Client/Project: 596607-RTP-EPA SAMPLES

Sample Type ¹		Visual Gross ²	Sample Color ³			Friability ⁴	Sample Texture ⁵	Morphology ⁶	Fiber Color ⁷ (in plane light)	Pleochroism ⁸	Bire ⁹ 1 lo 3 Hi 2 medium Extinction ¹⁰ 1 parallel 2 oblique	Asbestos Types ¹²	Non-Asbestos Types ¹³	Optical/Morph. Characteristics ¹⁴	Non-Fibrous Types ¹⁵
1 pipe insulation	6 acoustical tile	1 Homogenous	1 black	7 brown	13 orange	Friable or Nonfriable	1 cemenlic.	1 wavy	1 clear	1 no 2 yes if yes, give color	1 chrysotile	1 undulose ext.	1 cellulose	1 undulose ext.	1 matrix
2 pipe elbow	7 linoleum	2 Heterogenous	2 tan	8 blue	14 various		2 granular	2 straight	2 tan		2 amosite	2 fiberlass	2 isotropic	2 binder	
3 roofing material	8 floor tile		3 gold	9 white	15 other		3 fibrous	3 splayed ends	3 blue		3 crocidolite	3 mineral wool	3 shot	3 CaSO ₄	
4 soil	9 mastic/adhesive		4 yellow	10 red			4 firm	4 fiber bundles	4 brown		4 anthophyllite	4 synthetic fiber	4 morphology	4 CaCO ₃	
5 fire-proofing	0 other		3 Layered	5 silver	11 green		5 soft	5 single fibers	5 other		5 tremolite	5 wollastonite	5 mul.Lon.(flips)	5 Mica	
			6 gray	12 pink		6 paper-like	6 blocky	6 actinolite	6 other		6 actinolite	6 other	6 other		6 other

Sample Location (from Chain of Custody):

Lab Sample #	Sample Descriptions		Asbestos #1		Asbestos #2		Asbestos #3		% Asbestos Type (12)		% Fibrous Non-Asbestos Type (13)			Analyst's Notes	
	Client-Supplied Data	Macroscopic	Optical Properties		Optical Properties		Optical Properties		VAE/Point Count	%	VAE/Point Count	%	Optical Characteristics ¹⁴		
	Sample Type ¹	Visual Gross ²	Morph ⁶	nD II	Morph ⁶	nD II	Morph ⁶	nD II	Asb Counts:		Fiber Counts:				
559778			2	1.627					4						
			Fiber Color ⁷	nD ⊥	Fiber Color ⁷	nD ⊥	Fiber Color ⁷	nD ⊥		VAE	15	VAE			
Field Sample #	Friability ⁴	Sample Color ³	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰	Asb Counts:		Fiber Counts:				
									VAE		VAE				
0-253-0049-PC	F or N	Texture ⁵	Biref. ⁹	Elongation ¹¹	Biref. ⁹	Elongation ¹¹	Biref. ⁹	Elongation ¹¹	Asb Counts:		Fiber Counts:				
									VAE		VAE				
											Nonfibrous Types ¹⁵		Percentage		
Asbestos-Containing <input checked="" type="checkbox"/>			Non-Asbestos-Containing <input type="checkbox"/>			Analytical Method:									

Asbestos-Containing ☒ Non-Asbestos-Containing ☐ Analytical Method: *See bottom*

Sample Location (from Chain of Custody):

Sample Descriptions		Type #1		Type #2		Type #3		% Asbestos (12)		% Fibrous Non-Asbestos (13)			Analyst's Notes	
Lab Sample #	Client-Supplied Data	Macroscopic	Optical Properties		Optical Properties		Optical Properties		VAE/Point Count	%	VAE/Point Count	%	Optical Characteristics ¹⁴	Notes
559779	Sample Type ¹	Visual Gross ²	Morph ⁶	nD II	Morph ⁶	nD II	Morph ⁶	nD II	Asb Counts: 4/20	2.25	Fiber Counts:			
			Fiber Color ⁷	nD ⊥	Fiber Color ⁷	nD ⊥	Fiber Color ⁷	nD ⊥			VAE			
Field Sample #	Friability ⁴	Sample Color ³	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰	Asb Counts:		Fiber Counts:			
									VAE		VAE			
0-253-0050-PC	F or N	Texture ⁵	Biref. ⁹	Elongation ¹¹	Biref. ⁹	Elongation ¹¹	Biref. ⁹	Elongation ¹¹	Asb Counts:		Fiber Counts:			
									VAE		VAE			
Nonfibrous Types ¹⁵											Percentage			
Asbestos-Containing <input type="checkbox"/>		Non-Asbestos-Containing <input type="checkbox"/>		Analytical Method:		6 97.75								

Asbestos-Containing ☐ Non-Asbestos-Containing ☐ Analytical Method:

Sample Location (from Chain of Custody):

Sample Descriptions		Type #1		Type #2		Type #3		% Asbestos (12)		% Fibrous Non-Asbestos (13)			Analyst's Notes		
Lab Sample #	Client-Supplied Data	Macroscopic	Optical Properties		Optical Properties		Optical Properties		VAE/Point Count	%	VAE/Point Count	%	Optical Characteristics ¹⁴	Notes	
559780	Sample Type ¹ Δ	Visual Gross ² 1	Morph ⁶ 2	ND II 1.620	Morph ⁶	ND II	Morph ⁶	ND II	4	Asb Counts: 4.25	3.25	Fiber Counts: VAE			
			Fiber Color ⁷	ND ⊥	Fiber Color ⁷	ND ⊥	Fiber Color ⁷	ND ⊥							
			VAE												
Field Sample #	Friability ⁴ 7	Sample Color ³ 1	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰	Asb Counts: VAE		Fiber Counts: VAE				
0-253-0051-PC	F or N C	Texture ⁵ 4	Biref. ⁹	Elongation ¹¹	Biref. ⁹	Elongation ¹¹	Biref. ⁹	Elongation ¹¹	Non-empty Counts: VAE		Fiber Counts: VAE				
Asbestos-Containing <input type="checkbox"/> Non-Asbestos-Containing <input type="checkbox"/> Analytical Method:											Nonfibrous Types ¹⁵		Percentage		
											C		96.75		

Asbestos-Containing ☐ Non-Asbestos-Containing ☐ Analytical Method:

Sample Location (from Chain of Custody):

Sample Descriptions		Type #1		Type #2		Type #3		% Asbestos (12)		% Fibrous Non-Asbestos (13)			Analyst's		
Lab Sample #	Client-Supplied Data	Macroscopic	Optical Properties		Optical Properties		Optical Properties		VAE/Point Count	%	VAE/Point Counts	%	Optical Characteristics ¹⁴	Notes	
559781	Sample Type ¹	Visual Gross ²	Morph ⁶	ND II	Morph ⁶	ND II	Morph ⁶	ND II	4	Asb Counts: 5.5	Fiber Counts				
			Fiber Color ⁷	ND ⊥	Fiber Color ⁷	ND ⊥	Fiber Color ⁷	ND ⊥							
			VAE			VAE									
Field Sample #	Friability ⁴	Sample Color ³	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰	Asb Counts:		Fiber Counts				
			VAE			VAE			VAE						
			Texture ⁵	Biref. ⁹	Elongation ¹¹	Biref. ⁹	Elongation ¹¹	Biref. ⁹	Elongation ¹¹	Asb Counts:		Fiber Counts			
			VAE			VAE			VAE						
0-253-0052-PC	F or N														
Nonfibrous Types ¹⁵											Percentage				
Asbestos-Containing <input type="checkbox"/>		Non-Asbestos Containing <input type="checkbox"/>		Analytical Method:		6 94.5									

Asbestos-Containing ☐ Non-Asbestos-Containing ☐ Analytical Method:

Date of Analysis: 7-30-02

Analyst: AK

Analytical Methods:

- EPA/600/R-93/116 Without Gravimetry
- EPA/600/R-93/116 With Gravimetry
- EPA/600/R-93/116: 400 Point Count
- EPA/600/R-93/116: 1000 Point Count
- PLM NOB Chatfield Method
- NYDOH ELAP 198.1 (Modified): Matrix Reduction
- State of New Jersey DOLAWD Method (38 N.J.R. 2526)
- Other (specify):

* State of New Jersey DOLAWD Method 425

Lab Job # N/A

BLI Project # L537807

Name of Client/Project: 596607-RTP-EPA SAMPLES

Sample Type ¹		Visual Gross ²	Sample Color ³			Friability ⁴	Sample Texture ⁵	Morphology ⁶	Fiber Color ⁷ (in plane light)	Pleochroism ⁸	Bire ⁹	Asbestos Types ¹²	Non-Asbestos Types ¹³	Optical/Morph. Characteristics ¹⁴	Non-Fibrous Types ¹⁵			
			1 black	7 brown	13 orange		1 cementic.	1 wavy			1 lo 3 Hi 2 medium	1 chrysotile	1 cellulose	1 undulose ext.	1 matrix			
1 pipe insulation	5 acoustical tile	1 Homogenous	2 tan	8 blue	14 various	Friable or Nonfriable	2 granular	2 straight	1 clear	1 no 2 yes	Extinction ¹⁰ 1 parallel 2 oblique	2 amosite	2 fiberlass	2 isotropic	2 binder			
2 pipe elbow	7 linoleum		3 gold	9 white	15 other____		3 fibrous	3 splayed ends	2 tan				3 CaSO ₄					
3 roofing material	8 floor tile	2 Heterogenous	4 yellow	10 red	4 firm		4 fiber bundles	3 blue	3 CaCO ₃									
4 soil	9 mastic/adhesive		5 silver	11 green	5 soft		5 single fibers	4 brown	if yes, give color				Elongation ¹¹ + or -	5 tremolite		5 wollastonite	5 mult.elon.(fibs)	5 Mica
5 fire-proofing	0 other____	3 Layered	6 gray	12 pink	6 paper-like		6 blocky	5 other____						6 actinolite		6 other	6 other	

Sample Location (from Chain of Custody):

Lab Sample #	Sample Descriptions	Asbestos #1	Asbestos #2	Asbestos #3	% Asbestos Type (12)	% Fibrous Non-Asbestos Type (13)	Analyst's Notes
Client-Supplied Data	Macroscopic	Optical Properties	Optical Properties	Optical Properties	VAE/Point Count	%	Optical Characteristics ¹⁴
559782	Sample Type ¹ Visual Gross ² 0	Morph ⁶ 1.624 Fiber Color ⁷ ND ⊥	Morph ⁶ ND II Fiber Color ⁷ ND ⊥	Morph ⁶ ND II Fiber Color ⁷ ND ⊥	4 Asb Counts: 28/40 VAE	7	Fiber Counts: VAE
Field Sample #	Friability ⁴	Sample Color ³ 1	Pleochroism ⁸ 1	Extinction ¹⁰ 1	Asb Counts: VAE	Fiber Counts: VAE	
0-253-0053-PC	F or N -	Texture ⁵ 4	Biref. ⁹ 1	Elongation ¹¹ 4	Asb Counts: VAE	Fiber Counts: VAE	
Asbestos-Containing <input checked="" type="checkbox"/> Non-Asbestos-Containing <input type="checkbox"/> Analytical Method:					Nonfibrous Types ¹⁵ 6		Percentage 93

Sample Location (from Chain of Custody):

Lab Sample #	Sample Descriptions	Type #1	Type #2	Type #3	% Asbestos (12)	% Fibrous Non-Asbestos (13)	Analyst's Notes
Client-Supplied Data	Macroscopic	Optical Properties	Optical Properties	Optical Properties	VAE/Point Count	%	Optical Characteristics ¹⁴
559783	Sample Type ¹ Visual Gross ² 0	Morph ⁶ 1.629 Fiber Color ⁷ ND ⊥	Morph ⁶ ND II Fiber Color ⁷ ND ⊥	Morph ⁶ ND II Fiber Color ⁷ ND ⊥	4 Asb Counts: 25/40 VAE	6.25	Fiber Counts: VAE
Field Sample #	Friability ⁴	Sample Color ³ 1	Pleochroism ⁸ 1	Extinction ¹⁰ 1	Asb Counts: VAE	Fiber Counts: VAE	
0-253-0054-PC	F or N -	Texture ⁵ 4	Biref. ⁹ 1	Elongation ¹¹ 4	Asb Counts: VAE	Fiber Counts: VAE	
Asbestos-Containing <input type="checkbox"/> Non-Asbestos-Containing <input type="checkbox"/> Analytical Method:					Nonfibrous Types ¹⁵ 6		Percentage 93.75

Sample Location (from Chain of Custody):

Lab Sample #	Sample Descriptions	Type #1	Type #2	Type #3	% Asbestos (12)	% Fibrous Non-Asbestos (13)	Analyst's Notes
Client-Supplied Data	Macroscopic	Optical Properties	Optical Properties	Optical Properties	VAE/Point Count	%	Optical Characteristics ¹⁴
559784	Sample Type ¹ Visual Gross ² 0	Morph ⁶ 1.624 Fiber Color ⁷ ND ⊥	Morph ⁶ ND II Fiber Color ⁷ ND ⊥	Morph ⁶ ND II Fiber Color ⁷ ND ⊥	4 Asb Counts: 15/40 VAE	3.75	Fiber Counts: VAE
Field Sample #	Friability ⁴	Sample Color ³ 1	Pleochroism ⁸ 1	Extinction ¹⁰ 1	Asb Counts: VAE	Fiber Counts: VAE	
0-253-0055-PC	F or N -	Texture ⁵ 4	Biref. ⁹ 1	Elongation ¹¹ 4	Non-empty Counts: VAE	Fiber Counts: VAE	
Asbestos-Containing <input checked="" type="checkbox"/> Non-Asbestos-Containing <input type="checkbox"/> Analytical Method:					Nonfibrous Types ¹⁵ 6		Percentage 96.25

Sample Location (from Chain of Custody):

Lab Sample #	Sample Descriptions	Type #1	Type #2	Type #3	% Asbestos (12)	% Fibrous Non-Asbestos (13)	Analyst's Notes
Client-Supplied Data	Macroscopic	Optical Properties	Optical Properties	Optical Properties	VAE/Point Count	%	Optical Characteristics ¹⁴
559785	Sample Type ¹ Visual Gross ² 0	Morph ⁶ 1.627 Fiber Color ⁷ ND ⊥	Morph ⁶ ND II Fiber Color ⁷ ND ⊥	Morph ⁶ ND II Fiber Color ⁷ ND ⊥	4 Asb Counts: 12/40 VAE	12	Fiber Counts: VAE
Field Sample #	Friability ⁴	Sample Color ³ 1	Pleochroism ⁸ 1	Extinction ¹⁰ 1	Asb Counts: VAE	Fiber Counts: VAE	
0-253-0093-PC	F or N -	Texture ⁵ 4	Biref. ⁹ 1	Elongation ¹¹ 4	Asb Counts: VAE	Fiber Counts: VAE	
Asbestos-Containing <input checked="" type="checkbox"/> Non-Asbestos-Containing <input type="checkbox"/> Analytical Method:					Nonfibrous Types ¹⁵ 6		Percentage 25

Date of Analysis: 7-30-03

Analyst:

AK

Analytical Methods:

- EPA/600/R-93/116 Without Gravimetry
- EPA/600/R-93/116 With Gravimetry
- EPA/600/R-93/116: 400 Point Count

- EPA/600/R-93/116: 1000 Point Count
- PLM NOB Chatfield Method
- NYDOH ELAP 198.1 (Modified): Matrix Reduction

- State of New Jersey DOLA Method (38 N.J.R. 2526)
- Other (specify):

Lab Job # N/A

BLI Project # L537807

Name of Client/Project: 596607-RTP-EPA SAMPLES

Sample Type ¹		Visual Gross ²	Sample Color ³			Friability ⁴	Sample Texture ⁵	Morphology ⁶	Fiber Color ⁷ (in plane light)	Pleochroism ⁸	Bire ⁹ 1 lo 3 HI 2 medium	Asbestos Types ¹²	Non-Asbestos Types ¹³	Optical/Morph. Characteristics ¹⁴	Non-Fibrous Types ¹⁵
1 pipe insulation 2 pipe elbow 3 roofing material 4 soil 5 fire-proofing	6 acoustical tile 7 linoleum 8 floor tile 9 mastic/adhesive 0 other	1 Homogenous 2 Heterogenous 3 Layered	1 black 2 tan 3 gold 4 yellow 5 silver 6 gray	7 brown 8 blue 9 white 10 red 11 green 12 pink	13 orange 14 various 15 other	Friable or Nonfriable	1 cementic 2 granular 3 fibrous 4 firm 5 soft 6 paper-like	1 wavy 2 straight 3 splayed ends 4 fiber bundles 5 single fibers 6 blocky	1 clear 2 tan 3 blue 4 brown 5 other	1 no 2 yes # yes, give color	Extinction ¹⁰ 1 parallel 2 oblique Elongation ¹¹ + or -	1 chrysotile 2 amosite 3 crocidolite 4 anthophyllite 5 tremolite 6 actinolite	1 cellulose 2 fiberglass 3 mineral wool 4 synthetic fiber 5 wollastonite other	1 undulose ext. 2 isotropic 3 shot 4 morphology 5 mul.elon.(flips) other	1 matrix 2 binder 3 CaSO ₄ 4 CaCO ₂ 5 Mica 6 other

Sample Location (from Chain of Custody):

Lab Sample #	Sample Descriptions		Asbestos #1		Asbestos #2		Asbestos #3		% Asbestos Type (12)			% Fibrous Non-Asbestos Type (13)			Analyst's Notes			
	Client-Supplied Data	Macroscopic	Optical Properties		Optical Properties		Optical Properties		VAE/Point Count		%	VAE/Point Count		%		Optical Characteristics ¹⁴		
559786	Sample Type ¹	Visual Gross ²	Morph ⁶	ND II	Morph ⁶	ND II	Morph ⁶	ND II	4	Asb Counts:	9.2	Fiber Counts:						
			Fiber Color ⁷	ND ⊥	Fiber Color ⁷	ND ⊥	Fiber Color ⁷	ND ⊥		VAE		VAE						
Field Sample #	Friability ⁴	Sample Color ³	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰	Asb Counts:		Fiber Counts:							
0-253-0094-PC	F or N	Texture ⁵	Biref. ⁹	Elongation ¹¹	Biref. ⁹	Elongation ¹¹	Biref. ⁹	Elongation ¹¹	Asb Counts:		Fiber Counts:							
												Nonfibrous Types ¹⁵		Percentage				
Asbestos-Containing <input checked="" type="checkbox"/> Non-Asbestos-Containing <input type="checkbox"/>												Analytical Method:		6		90.15		

Sample Location (from Chain of Custody):

Sample Descriptions		Type #1		Type #2		Type #3		% Asbestos (12)		% Fibrous Non-Asbestos (13)			Analyst's			
Lab Sample #	Client-Supplied Data	Macroscopic	Optical Properties		Optical Properties		Optical Properties		VAE/Point Count		%	VAE/Point Count	%	Optical Characteristics ¹⁴	Notes	
	Sample Type ¹	Visual Gross ²	Morph ⁶	ND II	Morph ⁶	ND II	Morph ⁶	ND II	4	Asb Counts:	TR	Fiber Counts:				
559787			7	1.62.8												
			Fiber Color ⁷	ND ⊥	Fiber Color ⁷	ND ⊥	Fiber Color ⁷	ND ⊥		VAE		VAE				
Field Sample #	Friability ⁴	Sample Color ³	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰		Asb Counts:		Fiber Counts:				
		6	1	1						VAE		VAE				
0-253-0095-PC	F or N	Texture ⁵	Biref. ⁹	Elongation ¹¹	Biref. ⁹	Elongation ¹¹	Biref. ⁹	Elongation ¹¹		Asb Counts:		Fiber Counts:				
		4	1	4						VAE		VAE				
												Nonfibrous Types ¹⁵		Percentage		
Asbestos-Containing <input type="checkbox"/>		Non-Asbestos-Containing <input type="checkbox"/>		Analytical Method:								6		100		

Sample Location (from Chain of Custody):

Sample Descriptions		Type #1		Type #2		Type #3		% Asbestos (12)		% Fibrous Non-Asbestos (13)			Analyst's		
Lab Sample #	Client-Supplied Data	Macroscopic	Optical Properties		Optical Properties		Optical Properties		VAE/Point Count	%	VAE/Point Count	%	Optical Characteristics ¹⁴	Notes	
559788	Sample Type ¹ 0	Visual Gross ² 1	Morph ⁶	ND II	Morph ⁶	ND II	Morph ⁶	ND II	4 Asb Counts: 2.75	2.75	Fiber Counts:				
			Fiber Color ⁷	ND ⊥	Fiber Color ⁷	ND ⊥	Fiber Color ⁷	ND ⊥			VAE	2.75			VAE
Field Sample #	Friability ⁴ 7	Sample Color ³ 1	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰	Asb Counts:		Fiber Counts:				
									VAE		VAE				
0-253-0096-PC	F or N -	Texture ⁵ 4	Biref. ⁹	Elongation ¹¹	Biref. ⁹	Elongation ¹¹	Biref. ⁹	Elongation ¹¹	Non-empty Counts:		Fiber Counts:				
											VAE				VAE
Asbestos-Containing <input type="checkbox"/> Non-Asbestos-Containing <input type="checkbox"/> Analytical Method:											Nonfibrous Types ¹⁵ 6		Percentage 92.25		

Sample Location (from Chain of Custody):

	Sample Descriptions		Type #1		Type #2		Type #3		% Asbestos (12)		% Fibrous Non-Asbestos (13)			Analyst's		
Lab Sample #	Client-Supplied Data	Macroscopic	Optical Properties		Optical Properties		Optical Properties		VAE/Point Count	%	VAE/Point Counts	%	Optical Characteristics ¹⁴	Notes		
559789	Sample Type ¹ 0	Visual Gross ² 1	Morph ⁶	ND II	Morph ⁶	ND II	Morph ⁶	ND II	4	Asb Counts: 4.25	4.25	Fiber Counts				
			Fiber Color ⁷	ND ⊥	Fiber Color ⁷	ND ⊥	Fiber Color ⁷	ND ⊥				VAE				
Field Sample # 0-253-0100-PC	Friability ⁴ F or N —	Sample Color ³ 6 Texture ⁵ 4	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰	Pleochroism ⁸	Extinction ¹⁰		Asb Counts:		Fiber Counts				
												VAE				
												Asb Counts:			Fiber Counts	
												VAE			VAE	
Asbestos-Containing <input type="checkbox"/> Non-Asbestos-Containing <input type="checkbox"/> Analytical Method:												Nonfibrous Types ¹⁵ 6		Percentage 95.75		

Date of Analysis: 7.30.07

Analyst: AK

Analytical Methods:

1. EPA/600/R-93/116 Without Gravimetry
2. EPA/600/R-93/116 With Gravimetry
3. EPA/600/R-93/116: 400 Point Count

4. EPA/600/R-93/116: 1000 Point Count
5. PLM NOB Chatfield Method
6. NYDOH ELAP 198.1 (Modified): Matrix Reduction

7. State of New Jersey DOLA WD Method (38 N.J.R. 2526)
8. Other (specify):

Lab Job # N/A

BLI Project # L537807

Name of Client/Project: 596607-RTP-EPA SAMPLES

Sample Type ¹		Visual Gross ²	Sample Color ³			Friability ⁴	Sample Texture ⁵	Morphology ⁶	Fiber Color ⁷ (in plane light)	Pleochroism ⁸	Bire ⁹ 1 lo 3 Hi 2 medium	Asbestos Types ¹²	Non-Asbestos Types ¹³	Optical/Morph. Characteristics ¹⁴	Non-Fibrous Types ¹⁵
1 pipe insulation	6 acoustical tile	1 Homogenous	1 black	7 brown	13 orange	Friable or Nonfriable	1 cementic	1 wavy	1 clear	1 no 2 yes	Extinction ¹⁰ 1 parallel 2 oblique	1 chrysotile	1 cellulose	1 undulose ext.	1 matrix
2 pipe elbow	7 linoleum		2 tan	8 blue	14 various		2 granular	2 straight	2 amosite			2 fibreglass	2 fiberglass	2 isotropic	2 binder
3 roofing material	8 floor tile	2 Heterogenous	3 gold	9 white	15 other		3 fibrous	3 splayed ends	2 tan			3 crocidolite	3 mineral wool	3 shot	3 CaSO ₄
			4 yellow	10 red			4 firm	4 fiber bundles	3 blue			4 anthophyllite	4 synthetic fibre	4 morphology	4 CaCO ₂
4 soil	9 mastic/adhesive		5 silver	11 green			5 soft	5 single fibers	4 brown	if yes, give color	Elongation ¹¹ + or -	5 tremolite	5 wollastonite	5 mul.elon.(lips)	5 Mica
5 fire-proofing	0 other	3 Layered	6 gray	12 pink		6 paper-like	6 blocky	5 other	6 actinolite			6 other	6 other		6 other

Sample Location (from Chain of Custody):

Lab Sample #	Sample Descriptions	Asbestos #1	Asbestos #2	Asbestos #3	% Asbestos Type (12)	% Fibrous Non-Asbestos Type (13)	Analyst's Notes
Client-Supplied Data	Macroscopic	Optical Properties	Optical Properties	Optical Properties	VAE/Point Count	%	Optical Characteristics ¹⁴
559790	Sample Type ¹ Visual Gross ² 0	Morph ⁶ 2 Fiber Color ⁷ 1.527 nD ⊥	Morph ⁶ nD II Fiber Color ⁷ nD ⊥	Morph ⁶ nD II Fiber Color ⁷ nD ⊥	Asb Counts: 4 VAE	Fiber Counts: 3.5 VAE	
Field Sample #	Friability ⁴ 6	Sample Color ³ 1 Pleochroism ⁸ 1 Extinction ¹⁰ 1	Pleochroism ⁸ 1 Extinction ¹⁰ 1	Pleochroism ⁸ 1 Extinction ¹⁰ 1	Asb Counts: VAE	Fiber Counts: VAE	
0-253-0101-PC	F or N -	Texture ⁵ 4 Biref. ⁹ 1 Elongation ¹¹ +	Biref. ⁹ 1 Elongation ¹¹ +	Biref. ⁹ 1 Elongation ¹¹ +	Asb Counts: VAE	Fiber Counts: VAE	
Nonfibrous Types ¹⁵						Percentage	40.5

Asbestos-Containing ☒Non-Asbestos-Containing ☐

Analytical Method:

Sample Location (from Chain of Custody):

Lab Sample #	Sample Descriptions	Type #1	Type #2	Type #3	% Asbestos (12)	% Fibrous Non-Asbestos (13)	Analyst's Notes
Client-Supplied Data	Macroscopic	Optical Properties	Optical Properties	Optical Properties	VAE/Point Count	%	Optical Characteristics ¹⁴
559791	Sample Type ¹ Visual Gross ² 0	Morph ⁶ 2 Fiber Color ⁷ 1.528 nD ⊥	Morph ⁶ nD II Fiber Color ⁷ nD ⊥	Morph ⁶ nD II Fiber Color ⁷ nD ⊥	Asb Counts: 4 VAE	Fiber Counts: 1.75 VAE	
Field Sample #	Friability ⁴ 5	Sample Color ³ 1 Pleochroism ⁸ 1 Extinction ¹⁰ 1	Pleochroism ⁸ 1 Extinction ¹⁰ 1	Pleochroism ⁸ 1 Extinction ¹⁰ 1	Asb Counts: VAE	Fiber Counts: VAE	
0-253-0102-PC	F or N -	Texture ⁵ 4 Biref. ⁹ 1 Elongation ¹¹ +	Biref. ⁹ 1 Elongation ¹¹ +	Biref. ⁹ 1 Elongation ¹¹ +	Asb Counts: VAE	Fiber Counts: VAE	
Nonfibrous Types ¹⁵						Percentage	98.25

Asbestos-Containing ☐Non-Asbestos-Containing ☐

Analytical Method:

Sample Location (from Chain of Custody):

Lab Sample #	Sample Descriptions	Type #1	Type #2	Type #3	% Asbestos (12)	% Fibrous Non-Asbestos (13)	Analyst's Notes
Client-Supplied Data	Macroscopic	Optical Properties	Optical Properties	Optical Properties	VAE/Point Count	%	Optical Characteristics ¹⁴
	Sample Type ¹ Visual Gross ²	Morph ⁶ nD II Fiber Color ⁷ nD ⊥	Morph ⁶ nD II Fiber Color ⁷ nD ⊥	Morph ⁶ nD II Fiber Color ⁷ nD ⊥	Asb Counts: VAE	Fiber Counts: VAE	
Field Sample #	Friability ⁴	Sample Color ³ Pleochroism ⁸ Extinction ¹⁰	Pleochroism ⁸ Extinction ¹⁰	Pleochroism ⁸ Extinction ¹⁰	Asb Counts: VAE	Fiber Counts: VAE	
	F or N	Texture ⁵ Biref. ⁹ Elongation ¹¹	Biref. ⁹ Elongation ¹¹	Biref. ⁹ Elongation ¹¹	Non-empty Counts: VAE	Fiber Counts: VAE	
Nonfibrous Types ¹⁵						Percentage	

Asbestos-Containing ☐Non-Asbestos-Containing ☐

Analytical Method:

Sample Location (from Chain of Custody):

Lab Sample #	Sample Descriptions	Type #1	Type #2	Type #3	% Asbestos (12)	% Fibrous Non-Asbestos (13)	Analyst's Notes
Client-Supplied Data	Macroscopic	Optical Properties	Optical Properties	Optical Properties	VAE/Point Count	%	Optical Characteristics ¹⁴
	Sample Type ¹ Visual Gross ²	Morph ⁶ nD II Fiber Color ⁷ nD ⊥	Morph ⁶ nD II Fiber Color ⁷ nD ⊥	Morph ⁶ nD II Fiber Color ⁷ nD ⊥	Asb Counts: VAE	Fiber Counts: VAE	
Field Sample #	Friability ⁴	Sample Color ³ Pleochroism ⁸ Extinction ¹⁰	Pleochroism ⁸ Extinction ¹⁰	Pleochroism ⁸ Extinction ¹⁰	Asb Counts: VAE	Fiber Counts: VAE	
	F or N	Texture ⁵ Biref. ⁹ Elongation ¹¹	Biref. ⁹ Elongation ¹¹	Biref. ⁹ Elongation ¹¹	Asb Counts: VAE	Fiber Counts: VAE	
Nonfibrous Types ¹⁵						Percentage	

Asbestos-Containing ☐Non-Asbestos-Containing ☐

Analytical Method:

Date of Analysis: 7-30-05

Analyst: AK

Analytical Methods:

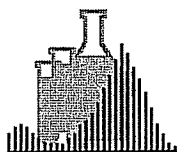
- EPA/600/R-93/116 Without Gravimetry
- EPA/600/R-93/116 With Gravimetry
- EPA/600/R-93/116: 400 Point Count

- EPA/600/R-93/116: 1000 Point Count
- PLM NOB Chatfield Method
- NYDOH ELAP 198.1 (Modified): Matrix Reduction

- State of New Jersey DOLA WD Method (38 N.J.R. 2526)
- Other (specify):

ATTACHMENT #2

Certificate of Soil Particle Size Analysis (ASTM D422-63)



BATTA LABORATORIES, INC.

A Certified MBE Company
Delaware Industrial Park, 6 Garfield Way
Newark, DE 19713-5817
Tel. (302) 737-3376 Fax (302) 737-5764



A.I.H.A./NLLP
#100448



NVLAP
#101032

Web: <http://www.battaenv.com> E-mail: battaenv@battaenv.com

CERTIFICATE OF SOIL PARTICLE SIZE ANALYSIS

Page 1 of 3

Test Method: ASTM D422-63

Report Date: 8/27/2007

Sampling Data

BLI Project #: L537807
Project Name: 596607-RTP-EPA SAMPLES

Date Sampled: 3/28/2007
Sampled By: Client
Date Analyzed: 7/17-23/2007

Sample ID		Client-supplied Data			Physical Data		Reported Results	
Lab Sample#	Client Sample#	Sample Location	Material Type	Friable?	Texture	Color	Sieve Size No.	Percent Passing
559778	0-253-0049	CHISEL-DAY 1	soil	n/a	firm	brown	4	100
							10	65.8
							50	21
							200	9.7
559779	0-253-0050	SHOVEL-DAY 2	soil	n/a	firm	gray	4	100
							10	69.1
							50	27.6
							200	7
559780	0-253-0051	OSC-UPPER SITE	soil	n/a	firm	brown	4	100
							10	73.8
							50	31.8
							200	13.3
559781	0-253-0052	OSC-UPPER SITE DUP	soil	n/a	firm	brown	4	100
							10	77.3
							50	35.6
							200	14.8
559782	0-253-0053	RAKE-DAY 1	soil	n/a	firm	brown	4	100
							10	64.6
							50	32.5
							200	15.4

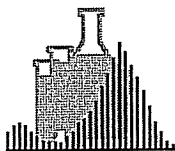
ANALYST: Craig Testing Laboratories of Maryland, Inc.

REVIEWED BY: *[Signature]* 08/28/07

*This report does not constitute endorsement by NVLAP and/or any other US government agencies.

*The test data pertain only to the items tested. No assumptions or conclusions should be made to materials or samples not analyzed. Furthermore, Batta Laboratories, Inc. assumes no responsibility for the accuracy of results influenced by the use of improper collection techniques or equipment.

* Electronic versions of the certificate of analysis (i.e. Excel files, PDF files, Word files, etc.) are not under the warranty of authenticity and accuracy of the original analytical results kept on file by the Batta Laboratories, Inc. (BLI). Under all circumstances BLI should be notified in writing for any changes made to these electronic certificates of analysis. Under no circumstances will BLI be liable for changes made to the electronic certificate of analysis without BLI's prior consent in writing.



BATTA LABORATORIES, INC.

A Certified MBE Company
Delaware Industrial Park, 6 Garfield Way
Newark, DE19713-5817
Tel. (302)737-3376 Fax (302) 737-5764



A.I.H.A./NLLP
#100448



NVLAP
#101032

Web: <http://www.battaenv.com> E-mail: battaenv@battaenv.com

CERTIFICATE OF SOIL PARTICLE SIZE ANALYSIS

Page 2 of 3

Test Method: ASTM D422-63

Report Date: 8/27/2007

Sampling Data

BLI Project #: L537807
Project Name: 596607-RTP-EPA SAMPLES

Date Sampled: 3/28/2007

Sampled By: Client

Date Analyzed: 7/17-23/2007

Sample ID		Client-supplied Data			Physical Data		Reported Results	
Lab Sample#	Client Sample#	Sample Location	Material Type	Friable?	Texture	Color	Sieve Size No.	Percent Passing
559783	0-253-0054	RAKE-DAY 1 DUP	soil	n/a	firm	brown	4	100
							10	60
							50	28.2
							200	5
559784	0-253-0055	RAKE-DAY 2	soil	n/a	firm	brown	4	100
							10	81.5
							50	47.5
							200	20.7
559785	0-253-0093	CHISEL-DAY 2	soil	n/a	firm	brown	4	100
							10	46.4
							50	21.6
							200	6.3
559786	0-253-0094	CHISEL-DAY 3	soil	n/a	firm	brown	4	100
							10	70.6
							50	44
							200	12.3
559787	0-253-0095	SHOVEL-DAY 3	soil	n/a	firm	gray	4	100
							10	98.7
							50	38.2
							200	20.6

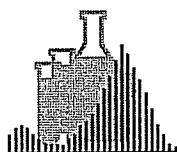
ANALYST: Craig Testing Laboratories of Maryland, Inc.

REVIEWED BY: *[Signature]* 8/28/07

*This report does not constitute endorsement by NVLAP and/or any other US government agencies.

*The test data pertain only to the items tested. No assumptions or conclusions should be made to materials or samples not analyzed. Furthermore, Batta Laboratories, Inc. assumes no responsibility for the accuracy of results influenced by the use of improper collection techniques or equipment.

* Electronic versions of the certificate of analysis (i.e. Excel files, PDF files, Word files, etc.) are not under the warranty of authenticity and accuracy of the original analytical results kept on file by the Batta Laboratories, Inc. (BLI). Under all circumstances BLI should be notified in writing for any changes made to these electronic certificates of analysis. Under no circumstances will BLI be liable for changes made to the electronic certificate of analysis without BLI's prior consent in writing.



BATTA LABORATORIES, INC.

A Certified MBE Company
Delaware Industrial Park, 6 Garfield Way
Newark, DE19713-5817
Tel. (302)737-3376 Fax (302) 737-5764



A.I.H.A./NLLP
#100448



NVLAP
#101032

Web: <http://www.battaenv.com> E-mail: battaenv@battaenv.com

CERTIFICATE OF SOIL PARTICLE SIZE ANALYSIS

Page 3 of 3

Test Method: ASTM D422-63

Report Date: 8/27/2007

Sampling Data

BLI Project #: L537807
Project Name: 596607-RTP-EPA SAMPLES

Date Sampled: 3/28/2007
Sampled By: Client
Date Analyzed: 7/17-23/2007

Sample ID		Client-supplied Data		Physical Data			Reported Results	
Lab Sample#	Client Sample#	Sample Location	Material Type	Friable?	Texture	Color	Sieve Size No.	Percent Passing
559788	0-253-0096	RAKE-DAY 3	soil	n/a	firm	brown	4	100
							10	74.8
							50	46
							200	17.8

ANALYST: Craig Testing Laboratories of Maryland, Inc.

REVIEWED BY:  08/28/07

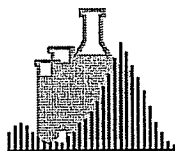
*This report does not constitute endorsement by NVLAP and/or any other US government agencies.

*The test data pertain only to the items tested. No assumptions or conclusions should be made to materials or samples not analyzed. Furthermore, Batta Laboratories, Inc. assumes no responsibility for the accuracy of results influenced by the use of improper collection techniques or equipment.

* Electronic versions of the certificate of analysis (i.e. Excel files, PDF files, Word files, etc.) are not under the warranty of authenticity and accuracy of the original analytical results kept on file by the Batta Laboratories, Inc. (BLI). Under all circumstances BLI should be notified in writing for any changes made to these electronic certificates of analysis. Under no circumstances will BLI be liable for changes made to the electronic certificate of analysis without BLI's prior consent in writing.

ATTACHMENT #3

Certificate of Soil Moisture Analysis (ASTM D4643-00)



BATTA LABORATORIES, INC.

A Certified MBE Company
Delaware Industrial Park, 6 Garfield Way
Newark, DE19713-5817
Tel. (302)737-3376 Fax (302) 737-5764



A.I.H.A./NLLP
#100448



NVLAP
#101032

Web: <http://www.battaenv.com> E-mail: battaenv@battaenv.com

CERTIFICATE OF SOIL MOISTURE ANALYSIS

Page 1 of 3

Test Method: ASTM D4643-00

Report Date: 8/27/2007

Sampling Data

BLI Project #: L537807
Project Name: 596607-RTP-EPA SAMPLES

Date Sampled: 3/28/2007

Sampled By: Client

Date Analyzed: 7/17-23/2007

Sample ID		Client-supplied Data			Physical Data		Reported Results	
Lab Sample#	Client Sample#	Sample Location	Material Type	Friable?	Texture	Color	Initial Weight (g) (Jar + Sample)	Percent Moisture (%)
559778	0-253-0049	CHISEL-DAY 1	soil	n/a	firm	brown	376.05	16.5
559779	0-253-0050	SHOVEL-DAY 2	soil	n/a	firm	gray	405.22	24.6
559780	0-253-0051	OSC-UPPER SITE	soil	n/a	firm	brown	417.04	21.1
559781	0-253-0052	OSC-UPPER SITE DUP	soil	n/a	firm	brown	674.07	23.6
559782	0-253-0053	RAKE-DAY 1	soil	n/a	firm	brown	684.91	14.9

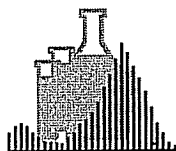
ANALYST: Craig Testing Laboratories of Maryland, Inc.

REVIEWED BY: *[Signature]* 08/28/07

*This report does not constitute endorsement by NVLAP and/or any other US government agencies.

*The test data pertain only to the items tested. No assumptions or conclusions should be made to materials or samples not analyzed. Furthermore, Batta Laboratories, Inc. assumes no responsibility for the accuracy of results influenced by the use of improper collection techniques or equipment.

* Electronic versions of the certificate of analysis (i.e. Excel files, PDF files, Word files, etc.) are not under the warranty of authenticity and accuracy of the original analytical results kept on file by the Batta Laboratories, Inc. (BLI). Under all circumstances BLI should be notified in writing for any changes made to these electronic certificates of analysis. Under no circumstances will BLI be liable for changes made to the electronic certificate of analysis without BLI's prior consent in writing.



BATTA LABORATORIES, INC.

A Certified MBE Company
Delaware Industrial Park, 6 Garfield Way
Newark, DE19713-5817
Tel. (302)737-3376 Fax (302) 737-5764



A.I.H.A./NLLP
#100448



NVLAP
#101032

Web: <http://www.battaenv.com> E-mail: battaenv@battaenv.com

CERTIFICATE OF SOIL MOISTURE ANALYSIS

Page 2 of 3

Test Method: ASTM D4643-00

Report Date: 8/27/2007

Sampling Data

BLI Project #: L537807
Project Name: 596607-RTP-EPA SAMPLES

Date Sampled: 3/28/2007

Sampled By: Client

Date Analyzed: 7/17-23/2007

Sample ID		Client-supplied Data			Physical Data		Reported Results	
Lab Sample#	Client Sample#	Sample Location	Material Type	Friable?	Texture	Color	Initial Weight (g) (Jar + Sample)	Percent Moisture (%)
559783	0-253-0054	RAKE-DAY 1 DUP	soil	n/a	firm	brown	432.11	17.5
559784	0-253-0055	RAKE-DAY 2	soil	n/a	firm	brown	628.04	21.9
559785	0-253-0093	CHISEL-DAY 2	soil	n/a	firm	brown	438.98	24.2
559786	0-253-0094	CHISEL-DAY 3	soil	n/a	firm	brown	572.15	2.3
559787	0-253-0095	SHOVEL-DAY 3	soil	n/a	firm	gray	499.07	19.2

ANALYST: Craig Testing Laboratories of Maryland, Inc.

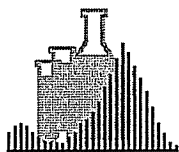
REVIEWED BY:

[Signature] 08/28/07

*This report does not constitute endorsement by NVLAP and/or any other US government agencies.

*The test data pertain only to the items tested. No assumptions or conclusions should be made to materials or samples not analyzed. Furthermore, Batta Laboratories, Inc. assumes no responsibility for the accuracy of results influenced by the use of improper collection techniques or equipment.

* Electronic versions of the certificate of analysis (i.e. Excel files, PDF files, Word files, etc.) are not under the warranty of authenticity and accuracy of the original analytical results kept on file by the Batta Laboratories, Inc. (BLI). Under all circumstances BLI should be notified in writing for any changes made to these electronic certificates of analysis. Under no circumstances will BLI be liable for changes made to the electronic certificate of analysis without BLI's prior consent in writing.



BATTA LABORATORIES, INC.

A Certified MBE Company
Delaware Industrial Park, 6 Garfield Way
Newark, DE19713-5817
Tel. (302)737-3376 Fax (302) 737-5764



A.I.H.A./NLLP
#100448



NVLAP
#101032

Web: <http://www.battaenv.com> E-mail: battaenv@battaenv.com

CERTIFICATE OF SOIL MOISTURE ANALYSIS

Page 3 of 3

Test Method: ASTM D4643-00

Report Date: 8/27/2007

Sampling Data

BLI Project #: L537807
Project Name: 596607-RTP-EPA SAMPLES

Date Sampled: 3/28/2007

Sampled By: Client

Date Analyzed: 7/17-23/2007

Sample ID		Client-supplied Data			Physical Data		Reported Results	
Lab Sample#	Client Sample#	Sample Location	Material Type	Friable?	Texture	Color	Initial Weight (g) (Jar + Sample)	Percent Moisture (%)
559788	0-253-0096	RAKE-DAY 3	soil	n/a	firm	brown	667.7	18.4

ANALYST: Craig Testing Laboratories of Maryland, Inc.

REVIEWED BY: *[Signature]* 08/28/07

*This report does not constitute endorsement by NVLAP and/or any other US government agencies.

*The test data pertain only to the items tested. No assumptions or conclusions should be made to materials or samples not analyzed. Furthermore, Batta Laboratories, Inc. assumes no responsibility for the accuracy of results influenced by the use of improper collection techniques or equipment.

* Electronic versions of the certificate of analysis (i.e. Excel files, PDF files, Word files, etc.) are not under the warranty of authenticity and accuracy of the original analytical results kept on file by the Batta Laboratories, Inc. (BLI). Under all circumstances BLI should be notified in writing for any changes made to these electronic certificates of analysis. Under no circumstances will BLI be liable for changes made to the electronic certificate of analysis without BLI's prior consent in writing.

ATTACHMENT #4

**Initial Report of Soil Analyses (Particle Size and Moisture)
By
Craig Testing Laboratories of Maryland, Inc.**

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121

LABORATORY ANALYSIS

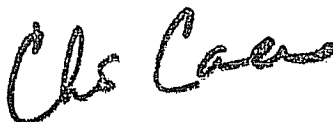
Sample Number: 0-253-0049
Sample Location: Chisel – Day 1
Initial Weight (Jar & Sample): 376.05 grams
Percent Moisture: 16.5%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	65.8
No. 50	21.0
No. 200	9.7

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121A

LABORATORY ANALYSIS

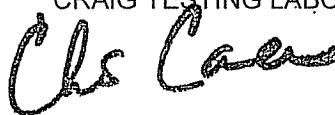
Sample Number: 0-253-0050
Sample Location: Shovel – Day 2
Initial Weight (Jar & Sample): 405.22 grams
Percent Moisture: 24.6%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	69.1
No. 50	27.6
No. 200	7.0

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121B

LABORATORY ANALYSIS

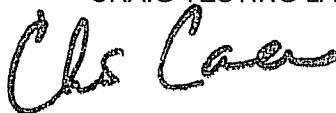
Sample Number: 0-253-0051
Sample Location: OSC
Initial Weight (Jar & Sample): 417.04 grams
Percent Moisture: 21.1%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	73.8
No. 50	31.8
No. 200	13.3

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121C

LABORATORY ANALYSIS

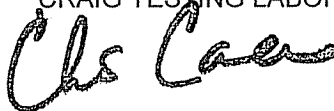
Sample Number: 0-253-0052
Sample Location: OSC DUP
Initial Weight (Jar & Sample): 674.07 grams
Percent Moisture: 23.6%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	77.3
No. 50	35.6
No. 200	14.8

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121D

LABORATORY ANALYSIS

Sample Number: 0-253-0053
Sample Location: Rake – Day 1
Initial Weight (Jar & Sample): 684.91 grams
Percent Moisture: 14.9%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	64.6
No. 50	32.5
No. 200	15.4

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121E

LABORATORY ANALYSIS

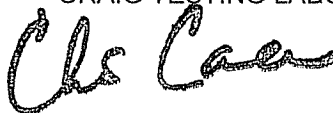
Sample Number: 0-253-0054
Sample Location: Rake – Day 1 DUP
Initial Weight (Jar & Sample): 432.11 grams
Percent Moisture: 17.5%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	60.0
No. 50	28.2
No. 200	5.0

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121F

LABORATORY ANALYSIS

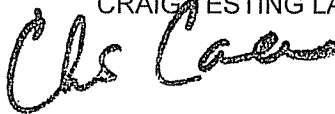
Sample Number: 0-253-0055
Sample Location: Rake – Day 2
Initial Weight (Jar & Sample): 628.04 grams
Percent Moisture: 21.9%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	81.5
No. 50	47.5
No. 200	20.7

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121G

LABORATORY ANALYSIS

Sample Number: 0-253-0093
Sample Location: Chisel – Day 2
Initial Weight (Jar & Sample): 438.98 grams
Percent Moisture: 24.2%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	46.4
No. 50	21.6
No. 200	6.3

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121H

LABORATORY ANALYSIS

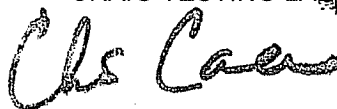
Sample Number: 0-253-0094
Sample Location: Chisel – Day 2
Initial Weight (Jar & Sample): 572.15 grams
Percent Moisture: 2.3%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	70.6
No. 50	44.0
No. 200	12.3

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 971211

LABORATORY ANALYSIS

Sample Number: 0-253-0095
Sample Location: Shovel – Day 3
Initial Weight (Jar & Sample): 499.07 grams
Percent Moisture: 19.2%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	98.7
No. 50	38.2
No. 200	20.6

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.


Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121J

LABORATORY ANALYSIS

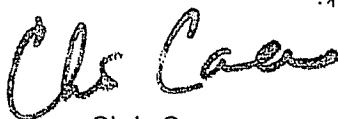
Sample Number: 0-253-0096
Sample Location: Rake – Day 3
Initial Weight (Jar & Sample): 667.70 grams
Percent Moisture: 18.4%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	74.8
No. 50	46.0
No. 200	17.8

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

ATTACHMENT #5

Chain of Custody

2537807

REAC

Edison, N.J.
EPA Contract Number: EP-C-04-032

CHAIN OF CUSTODY RECORD

Site #: 0-253
Howard Schmidt
609-865-8650

No: 0-253-04/04/07-0001

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container
	0-253-0049	Chisel - Day 1	astm d422-63 astm d6565-00	Soil	3/28/2007	1	16 oz glass
	0-253-0049	Chisel - Day 1	carb 435 asbestos	Soil	3/28/2007	1	8 oz glass
	0-253-0050	Shovel - Day 2	astm d422-63 astm d6565-00	Soil	3/28/2007	1	16 oz glass
	0-253-0050	Shovel - Day 2	carb 435 asbestos	Soil	3/28/2007	1	8 oz glass
	0-253-0051	OSC - Upper Site	astm d422-63 astm d6565-00	Soil	3/28/2007	1	16 oz glass
	0-253-0051	OSC - Upper Site	carb 435 asbestos	Soil	3/28/2007	1	8 oz glass
	0-253-0052	OSC - Upper Site Dup	astm d422-63 astm d6565-00	Soil	3/28/2007	1	16 oz glass
	0-253-0052	OSC - Upper Site Dup	carb 435 asbestos	Soil	3/28/2007	1	8 oz glass
	0-253-0053	Rake - Day 1	astm d422-63 astm d6565-00	Soil	3/28/2007	1	16 oz glass
	0-253-0053	Rake - Day 1	carb 435 asbestos	Soil	3/28/2007	1	8 oz glass
	0-253-0054	Rake - Day 1 Dup	astm d422-63 astm d6565-00	Soil	3/28/2007	1	16 oz glass
	0-253-0054	Rake - Day 1 Dup	carb 435 asbestos	Soil	3/28/2007	1	8 oz glass
	0-253-0055	Rake - Day 2	astm d422-63 astm d6565-00	Soil	3/28/2007	1	16 oz glass

SPECIAL INSTRUCTIONS: Analyses: ASTM D422-63(2002)e1, D6565-00(2005), and C.A.R.B. 435 with 0.25% detection limit		SAMPLES TRANSFERRED FROM	
		CHAIN OF CUSTODY #	

Items/Reason	Relinquished by	Date	Received by	Date	Relinquished By	Date	Received by	Date	Time
Samples	Howard Schmidt	7/30/07	Bo Li	7/30/07 11:15					

* Samples 0-253-0055 and 0-253-0096 Need clarification. There are discrepancies b/w COC and analyses requested.

CHAIN OF CUSTODY RECORD

No: 0-253-04/04/07-0001

REAC

Edison, N.J.
 EPA Contract Number: EP-C-04-032
 Site #: 0-253
 Howard Schmidt
 609-865-6650

Lab #	Sample #	Location	Analyses	Matrix	Collected	Numb Cont	Container
	0-253-0055	Rake - Day 2	carb 435 asbestos	Soil	3/28/2007	1	8 oz glass
	0-253-0093	Chisel - Day 2	asim d422-63 asim d6565-00 carb 435 asbestos	Soil	3/29/2007	1	16 oz glass
	0-253-0094	Chisel - Day 3	asim d422-63 asim d6565-00 carb 435 asbestos	Soil	3/29/2007	1	16 oz glass
	0-253-0095	Shovel - Day 3	asim d422-63 asim d6565-00	Soil	3/29/2007	1	16 oz glass
	0-253-0095	Shovel - Day 3	carb 435 asbestos	Soil	3/29/2007	1	16 oz glass
	0-253-0096	Rake - Day 3	asim d422-63 asim d6565-00	Soil	3/29/2007	1	16 oz glass
	0-253-0096	Rake - Day 3	asim d422-63 asim d6565-00	Soil	3/29/2007	1	16 oz glass
	0-253-0100	OSC - J1W2	carb 435 asbestos	Soil	3/29/2007	1	Bag
	0-253-0101	OSC - J1W3	carb 435 asbestos	Soil	3/29/2007	1	Bag
	0-253-0102	OSC - J1W1	carb 435 asbestos	Soil	3/29/2007	1	Bag

Special Instructions: Analyses: ASTM D422-63(2002)e1, D6565-00(2005), and C.A.R.B. 435 with 25% detection limit		SAMPLES TRANSFERRED FROM	
		CHAIN OF CUSTODY #	

Items/Reason	Relinquished by	Date	Received by	Date	Time
Samples	Howard Schmidt	3/29/07	Bo-Li	3/29/07	11:15

Bo Li

From: Schmidt, Howard D [howard.d.schmidt@lmco.com]
Sent: Friday, July 13, 2007 7:23 AM
To: Bo Li
Subject: corrected soil COC from Lockheed Martin
Attachments: Trip 1 Soil COC - corrected 071307.pdf

Bo,

I have attached a corrected copy of the COC in PDF format. It includes any issues that were noted in writing on the original hard copy. Please contact me if you have any other questions or concerns.

Thank you for bringing the errors to our attention.

Regards,

Howard

Howard D. Schmidt, M.S., M.B.A.
Atmospheric Modeling Team Leader
Lockheed Martin/REAC
2890 Woodbridge Ave. Bldg. 209
Edison, NJ 08837
732-321-4280 (o)
609-865-6650 (c)

7/16/2007

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121

LABORATORY ANALYSIS

Sample Number: 0-253-0049
Sample Location: Chisel – Day 1
Initial Weight (Jar & Sample): 376.05 grams
Percent Moisture: 16.5%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	65.8
No. 50	21.0
No. 200	9.7

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121A

LABORATORY ANALYSIS

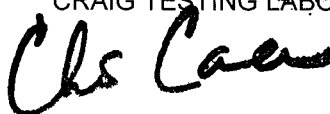
Sample Number: 0-253-0050
Sample Location: Shovel – Day 2
Initial Weight (Jar & Sample): 405.22 grams
Percent Moisture: 24.6%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	69.1
No. 50	27.6
No. 200	7.0

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121B

LABORATORY ANALYSIS

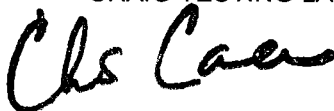
Sample Number: 0-253-0051
Sample Location: OSC
Initial Weight (Jar & Sample): 417.04 grams
Percent Moisture: 21.1%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	73.8
No. 50	31.8
No. 200	13.3

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121C

LABORATORY ANALYSIS

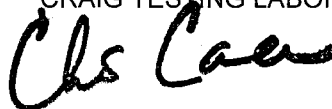
Sample Number: 0-253-0052
Sample Location: OSC DUP
Initial Weight (Jar & Sample): 674.07 grams
Percent Moisture: 23.6%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	77.3
No. 50	35.6
No. 200	14.8

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121D

LABORATORY ANALYSIS

Sample Number: 0-253-0053
Sample Location: Rake – Day 1
Initial Weight (Jar & Sample): 684.91 grams
Percent Moisture: 14.9%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	64.6
No. 50	32.5
No. 200	15.4

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121E

LABORATORY ANALYSIS

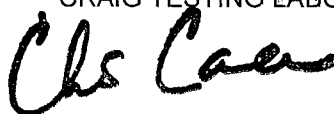
Sample Number: 0-253-0054
Sample Location: Rake – Day 1 DUP
Initial Weight (Jar & Sample): 432.11 grams
Percent Moisture: 17.5%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	60.0
No. 50	28.2
No. 200	5.0

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121F

LABORATORY ANALYSIS

Sample Number: 0-253-0055
Sample Location: Rake – Day 2
Initial Weight (Jar & Sample): 628.04 grams
Percent Moisture: 21.9%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	81.5
No. 50	47.5
No. 200	20.7

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,

CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121G

LABORATORY ANALYSIS

Sample Number: 0-253-0093
Sample Location: Chisel – Day 2
Initial Weight (Jar & Sample): 438.98 grams
Percent Moisture: 24.2%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	46.4
No. 50	21.6
No. 200	6.3

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121H

LABORATORY ANALYSIS

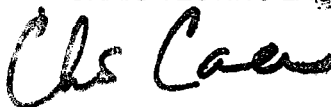
Sample Number: 0-253-0094
Sample Location: Chisel – Day 2
Initial Weight (Jar & Sample): 572.15 grams
Percent Moisture: 2.3%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	70.6
No. 50	44.0
No. 200	12.3

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121I

LABORATORY ANALYSIS

Sample Number: 0-253-0095
Sample Location: Shovel – Day 3
Initial Weight (Jar & Sample): 499.07 grams
Percent Moisture: 19.2%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	98.7
No. 50	38.2
No. 200	20.6

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.


Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: March 28, 2007

SAMPLED BY: Client

DATE TESTED: July 17 – 23, 2007

LAB NUMBER: 97121J

LABORATORY ANALYSIS

Sample Number: 0-253-0096
Sample Location: Rake – Day 3
Initial Weight (Jar & Sample): 667.70 grams
Percent Moisture: 18.4%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100.0
No. 10	74.8
No. 50	46.0
No. 200	17.8

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Check List for RTP Delivery Package

Company: Batta Laboratories, Inc.

EPA Job#: EP-C-04-032

EPA COC#: 0-253-08/07/07-0011

Lab Job#: N/A

✓ Summary Report

✓ Batta Data Sheet for the Summary Report

✓ Original EPA COC

N/A AHERA/ISO Report Sheet (from EDD submitted)

N/A Data Entry 1 Sheet (from EDD submitted)

N/A Data Entry 2 Sheet (from EDD submitted)

✓ Copy of Analytical Benchsheets

 Miscellaneous (Specified in the comment box below)

Case Narrative/Comment:

This summary report is pursuant to EPA purchase order EP074000155 (EPA Contact Number: EP-C-04-032) for asbestos and sil sample shipment received on Sept 4, 2007, consisting of 4 samples for asbestos, soil moisture and soil particle size, respectively. The report consists of Batta certificate analysis, second-party analytical sheets (Craig Testing Laboratories of Maryland, Inc. for soil moisture and particle size), laboratory analytical benchsheets and monthly oil calibration sheet.

REAC

Edison, N.J.

Site #: 0-253

Howard Schmidt

609-865-6650

157807

[illegible]

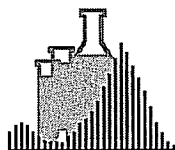
Special Instructions: 8 oz. jars = CARB 435 analysis

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

16 oz. jars = ASTM D422-63 & ASTM D6565-00 analyses

[illegible]



BATTA LABORATORIES, INC.

A Certified MBE Company
Delaware Industrial Park, 6 Garfield Way
Newark, DE19713-5817
Tel. (302)737-3376 Fax (302) 737-5764



A.I.H.A./NLLP
#100448



NVLAP
#101032

Web: <http://www.battaenv.com> E-mail: battaenv@battaenv.com

CERTIFICATE OF PLM ANALYSIS

Page 1 of 1

Test Method: State of California Air Resources Board Method 435

Report Date: 10/9/2007

Sampling Data

BLI Project #: L537807
Project Name: 596607-RTP-EPA SAMPLES

Date Sampled: 7/25/2007
Sampled By: CLIENT
Date Analyzed: 9/11/2007

Sample ID		Client-supplied Data			Analytical Data		Reported Results		
Lab Sample#	Client Sample#	Sample Location	Material Type	Friable?	Texture	Color	Non-asbestiform Components	Asbestiform Components	
562275	43198	UPPER SITE	soil	n/a	firm	brown	95.75% non-fibrous	4.25% anthophyllite	asbestos containing
562277	43200	UPPER SITE-DUP	soil	n/a	firm	brown	93.75% non-fibrous	6.25% anthophyllite	asbestos containing
562279	43202	LOWER SITE-RIGHT	soil	n/a	firm	brown	85% non-fibrous	15% anthophyllite (Visual)	asbestos containing
562281	43204	LOWER SITE-LEFT	soil	n/a	firm	brown	95% non-fibrous	5% anthophyllite	asbestos containing

Note 1 Organically-bound, nonfriable material may interfere with the accurate quantification of asbestos. In these cases, the EPA recommends more definitive analysis by a matrix-reduction method (i.e. Chatfield SOP-1988-02, Rev.1)

Note 2 Due to limitations of the EPA PLM method, floor tiles may yield false negative (<1%) results by this method. Due to this, the EPA recommends more definitive analysis using analytical electron microscopy.

ANALYST: Asghar Keyvanfar

REVIEWED BY: *Ref: 10/10/07*

*This report does not constitute endorsement by NVLAP and/or any other US government agencies.

*The test data pertain only to the items tested. No assumptions or conclusions should be made to materials or samples not analyzed. Furthermore, Batta Laboratories, Inc. assumes no responsibility for the accuracy of results influenced by the use of improper collection techniques or equipment.

* Due to the general heterogeneity of asbestos containing materials (ACM), EPA and OSHA have recommended submission of at least three samples of each type of materials for PLM analysis. Submission of fewer samples may compromise the accuracy of ACM determination.

* Electronic versions of the certificate of analysis (i.e. Excel files, PDF files, Word files, etc.) are not under the warranty of authenticity and accuracy of the original analytical results kept on file by the Batta Laboratories, Inc. (BLI). Under all circumstances BLI should be notified in writing for any changes made to these electronic certificates of analysis. Under no circumstances will BLI be liable for changes made to the electronic certificate of analysis without BLI's prior consent in writing.



BATTA LABORATORIES, INC.

A Certified MBE Company
Delaware Industrial Park, 6 Garfield Way
Newark, DE19713-5817
Tel. (302)737-3376 Fax (302) 737-5764



A.I.H.A./NLLP
#100448



NVLAP
#101032

Web: <http://www.battaenv.com> E-mail: battaenv@battaenv.com

CERTIFICATE OF SOIL MOISTURE ANALYSIS

Page 1 of 3

Test Method: ASTM D4643-00

Report Date: 10/9/2007

Sampling Data

BLI Project #: L537807
Project Name: 596607-RTP-EPA SAMPLES

Date Sampled: 7/25/2007

Sampled By: Client

Date Analyzed: 9/10/2007

Sample ID		Client-supplied Data			Physical Data		Reported Results	
Lab Sample#	Client Sample#	Sample Location	Material Type	Friable?	Texture	Color	Initial Weight (g) (Jar + Sample)	Percent Moisture (%)
562274	43197	Upper Site	soil	n/a	firm	brown	642.89	34
562276	43199	Upper Site Dup	soil	n/a	firm	brown	585.15	18.4
562278	43201	Lower Site Right	soil	n/a	firm	brown	721.68	14
562280	43203	Lower Site Left	soil	n/a	firm	brown	786.16	24.9

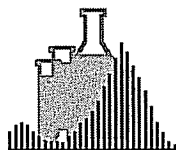
ANALYST: Craig Testing Laboratories of Maryland, Inc.

REVIEWED BY:  10/10/07

*This report does not constitute endorsement by NVLAP and/or any other US government agencies.

*The test data pertain only to the items tested. No assumptions or conclusions should be made to materials or samples not analyzed. Furthermore, Batta Laboratories, Inc. assumes no responsibility for the accuracy of results influenced by the use of improper collection techniques or equipment.

* Electronic versions of the certificate of analysis (i.e. Excel files, PDF files, Word files, etc.) are not under the warranty of authenticity and accuracy of the original analytical results kept on file by the Batta Laboratories, Inc. (BLI). Under all circumstances BLI should be notified in writing for any changes made to these electronic certificates of analysis. Under no circumstances will BLI be liable for changes made to the electronic certificate of analysis without BLI's prior consent in writing.



BATTA LABORATORIES, INC.

A Certified MBE Company
Delaware Industrial Park, 6 Garfield Way
Newark, DE19713-5817
Tel. (302)737-3376 Fax (302) 737-5764



A.I.H.A./NLLP
#100448



NVLAP
#101032

Web: <http://www.battaenv.com> E-mail: battaenv@battaenv.com

CERTIFICATE OF SOIL PARTICLE SIZE ANALYSIS

Page 1 of 3

Test Method: ASTM D422-63

Report Date: 10/9/2007

Sampling Data

BLI Project #: L537807
Project Name: 596607-RTP-EPA SAMPLES

Date Sampled: 7/25/2007
Sampled By: Client
Date Analyzed: 9/10/2007

Sample ID		Client-supplied Data			Physical Data		Reported Results	
Lab Sample#	Client Sample#	Sample Location	Material Type	Friable?	Texture	Color	Sieve Size No.	Percent Passing
562274	43197	Upper Site	soil	n/a	firm	brown	4	89.4
							10	82.4
							50	58.9
							200	40
562276	43199	Upper Site Dup	soil	n/a	firm	brown	4	89.9
							10	83
							50	58.5
							200	37.2
562278	43201	Lower Site Right	soil	n/a	firm	brown	4	67.5
							10	55.2
							50	33
							200	19.3
562280	43203	Lower Site Left	soil	n/a	firm	brown	4	88.1
							10	84
							50	58
							200	41.3

ANALYST: Craig Testing Laboratories of Maryland, Inc.

REVIEWED BY:  10/10/07

*This report does not constitute endorsement by NVLAP and/or any other US government agencies.

*The test data pertain only to the items tested. No assumptions or conclusions should be made to materials or samples not analyzed. Furthermore, Batta Laboratories, Inc. assumes no responsibility for the accuracy of results influenced by the use of improper collection techniques or equipment.

* Electronic versions of the certificate of analysis (i.e. Excel files, PDF files, Word files, etc.) are not under the warranty of authenticity and accuracy of the original analytical results kept on file by the Batta Laboratories, Inc. (BLI). Under all circumstances BLI should be notified in writing for any changes made to these electronic certificates of analysis. Under no circumstances will BLI be liable for changes made to the electronic certificate of analysis without BLI's prior consent in writing.

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: July 25, 2007

SAMPLED BY: Client

DATE TESTED: September 10, 2007

LAB NUMBER: 97187C

LABORATORY ANALYSIS

Sample Number: 43197
Sample Location: Upper Site
Initial Weight (Jar & Sample): 642.89 grams
Percent Moisture: 34.0%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	89.4
No. 10	82.4
No. 50	58.9
No. 200	40.0

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: July 25, 2007

SAMPLED BY: Client

DATE TESTED: September 10, 2007

LAB NUMBER: 97187

LABORATORY ANALYSIS

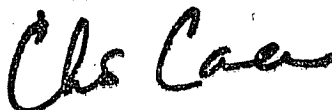
Sample Number: 43199
Sample Location: Upper Site Dup
Initial Weight (Jar & Sample): 585.15 grams
Percent Moisture: 18.4%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	89.9
No. 10	83.0
No. 50	58.5
No. 200	37.2

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: July 25, 2007

SAMPLED BY: Client

DATE TESTED: September 10, 2007

LAB NUMBER: 97187B

LABORATORY ANALYSIS

Sample Number: 43201
Sample Location: Lower Site Right
Initial Weight (Jar & Sample): 721.68 grams
Percent Moisture: 14.0%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	67.5
No. 10	55.2
No. 50	33.0
No. 200	19.3

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc

Craig Testing Laboratories Of Maryland, Inc.

10850-C Hanna Street
Beltsville, Maryland 20705

(301) 937-9063 Phone
(301) 937-9067 Fax

CLIENT: Batta Laboratories

PROJECT: REAC
Edison, NJ
EPA Contract Number: EP-C-04-032

MATERIAL: Soils Samples Submitted by Client for Laboratory Analysis

TEST REQUIRED: Percent Moisture and Washed Gradation Analysis

DATE SAMPLED: July 25, 2007

SAMPLED BY: Client

DATE TESTED: September 10, 2007

LAB NUMBER: 97187A

LABORATORY ANALYSIS

Sample Number: 43203
Sample Location: Lower Left side
Initial Weight (Jar & Sample): 786.16 grams
Percent Moisture: 24.9%

Washed Gradation Analysis

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	88.1
No. 10	84.0
No. 50	58.0
No. 200	41.3

NOTE: Washed Gradation Analysis performed in accordance with ASTM D422-63 (2002).
Percent Moisture performed in accordance with ASTM D4643-00.

Respectfully submitted,
CRAIG TESTING LABORATORIES OF MARYLAND, INC.



Chris Cannan
President

CC/sjc



Refractive Index Oil Calibration Worksheet

Single Liquid Method - Dr Su 1993 Manuscript

Month September Year 2007

Start with: $n_D^S = n_D^L + (\Delta^L - \Delta^S) \cdot k_1$

Becomes: $n_D^L = n_D^S - (\Delta^L - \Delta^S) \cdot k_1$

Where: n_D^L = Index of refraction of the liquid

n_D^S = Index of refraction of the solid

Δ^L = Dispersion coefficient of the liquid

Δ^S = Dispersion coefficient of the solid

k_1 = Conversion constant (from the matching wavelength to Hartman's Constant)

Date	Oil Used	Gargille Value (1589A)	Δ^S (from label)	Temp Coefficient (dn/dt from label)	(nF - nD) Gargille Chart	Wavelength Observed	K ₁ Conv Factor	Temp (C) Calibration	Calculated n _D	Lot # or ID (from label)
9-4-07	550	1.55158	0.0272	0.000491	0.01112	580	0.05	25	1.55776	1106
	680	1.67827	0.0348	0.000475	0.01226	610	-0.10		1.68524	0696
	605	1.60585	0.0243	0.000441	0.01570	630	-0.19		1.6074845	1095
	625	1.62564	0.0275	0.000452	0.01759	570	0.10	4	1.624649	0902
	640	1.64333	0.0299	0.000460	0.01943					

Space for Calculations:

$1.550 \quad \lambda_0 = 580 \quad K_0 = 0.05 \quad n_{LD} = 1.55158 - (0.0272 - 0.01112) \times 0.05$
 $n_{LD} = 1.550776$
 $1.680 \quad \lambda_0 = 610 \quad K_0 = -0.10 \quad n_{LD} = 1.67827 - (0.0348 - 0.01226) \times -0.10$
 $n_{LD} = 1.680524$
 $1.605 \quad \lambda_0 = 630 \quad K_0 = -0.19 \quad n_{LD} = 1.60585 - (0.0243 - 0.01570) \times -0.19$
 $n_{LD} = 1.6074845$
 $1.625 \quad \lambda_0 = 570 \quad K_0 = 0.10 \quad n_{LD} = 1.62564 - (0.0275 - 0.01759) \times 0.10$
 $n_{LD} = 1.624649$

Analyst Signature

QA/QC Mgr. Signature

7. State of New Jersey DOLAWD Method (38 N.J.R. 2526)
8. Other (specify):